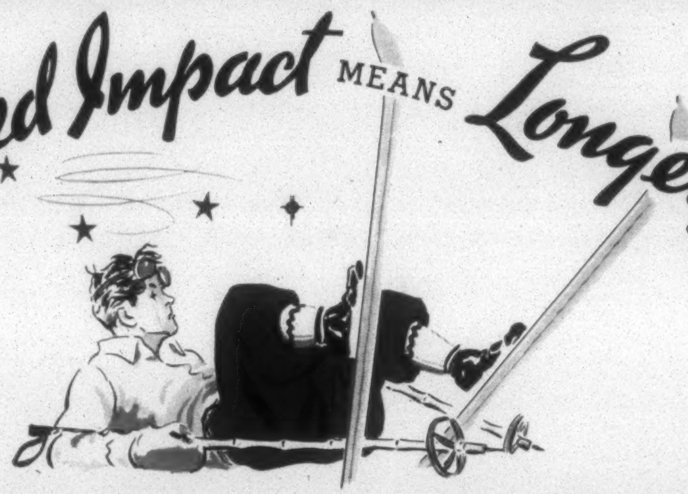
TEXTILE BULLETIN

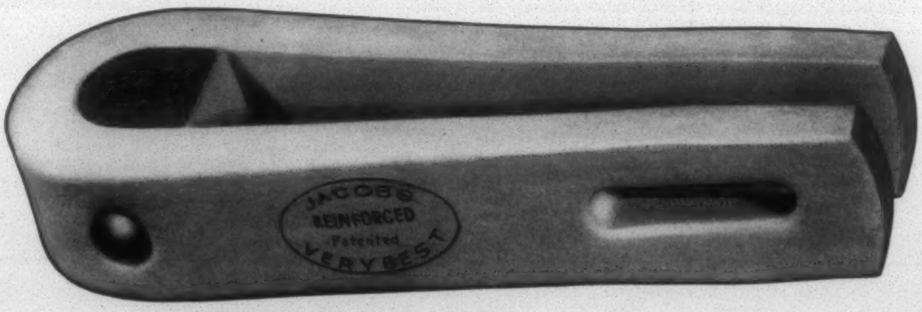
VOL. 59 JANUARY 15, 1941 NO. 10

INSTITUTE FOR RESEARCH IN SOCIAL SCIENCE

Controlled Impact MEANS Longer Life



Ski jumping requires an extraordinary sense of balance and muscular coordination to overcome safely the impact of landing.



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U. S. Travelers reduce the cost of producing high quality yarns because they are designed and made for fast, smooth work . . . with the closest attention to every detail. They are the result of years of experience of men who know the needs of the textile industry in this field—that is why they are the choice of experienced textile operators the country over.

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A Traveler for Every Fibre

Published Semi-Monthly by Clark Publishing Company, 218 West Morehead Street, Charlotte, N. C. Subscription $1.50 per year in advance. Entered as second-class mail matter March 2, 1911, at Postoffice, Charlotte, N. C., under Act of Congress March 2, 1897.

For many years Foster cones have provided the standard of efficiency for the knitting trade, because they have had the proper taper, angle of wind and density to assure free and uniform delivery at the knitting machine.

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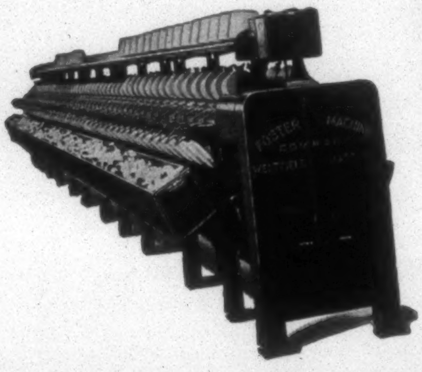

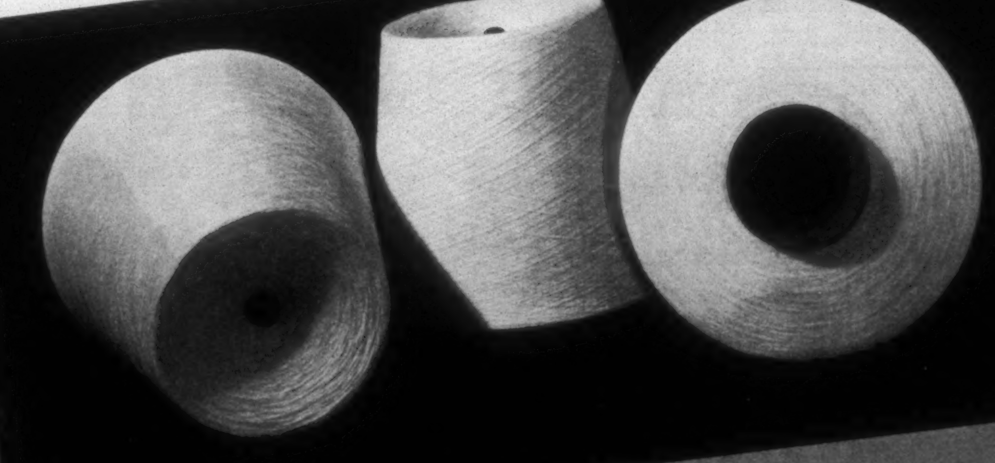

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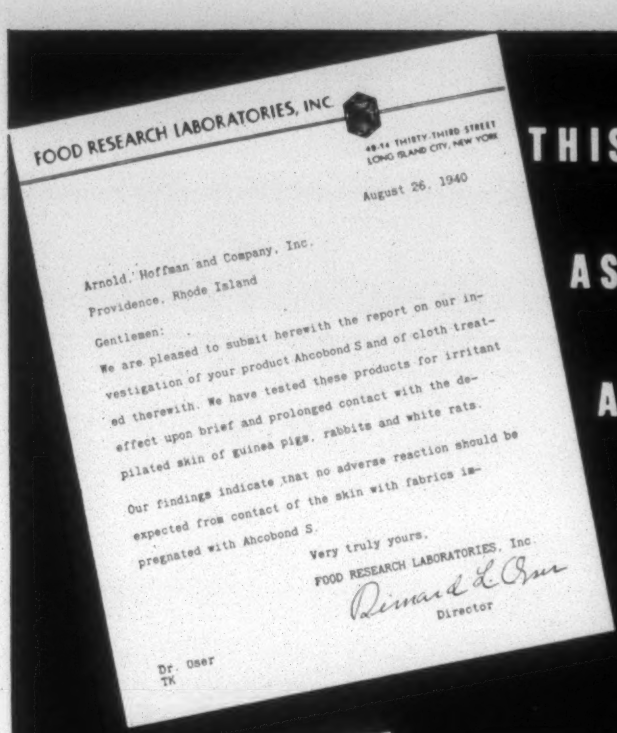

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August 26, 1940

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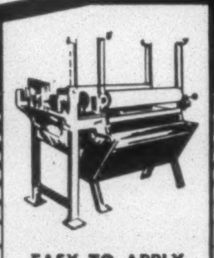
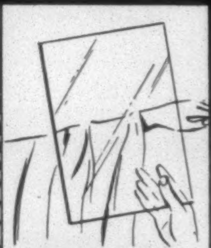


EASY TO APPLY No special equipment — no baking to set.



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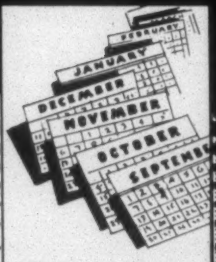

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MORE ECONOMICAL than older types of binders

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Paint away gloom with SAVE-LITE!

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TEXTILE BULLETIN

Vol. 59 January 15, 1941 No. 10

Textile Mills Must Face National Defense Needs

Stuart W. Cramer, Jr., President of Cramerton Mills and President of the Southern Combed Yarn Spinners' Association, made a stirring address at the December meeting of the group. The talk was primarily directed at the combed yarn spinners, but in our opinion it also applies to all other branches of the industry. It is a very realistic facing of the problems arising from the National Defense Program. Major Cramer states, "Our shoulders are going to the wheel either voluntarily or under the sting of the whip. Which shall it be?"

EARLY last fall in taking up my duties as president of your Association, I called attention to the threatening development of world politics, and to the likelihood that the newly started program of national rearmament would become our most important business during the coming year. Shortly afterward I called a special meeting for the purpose of emphasizing the importance of our co-operating with national defense measures, and of taking appropriate steps to secure that co-operation. A committee was appointed, charged with the duty of ascertaining the government's requirements in terms of combed yarns, and of seeing that the government procurement agencies attained what they needed from us at a reasonable price.

The committee, which was carefully chosen from among the ablest and most influential members of our group, set to work zealously on its task, and for a short time gave promise of performing a highly useful service both to the government and to this Association. Very soon, however, it ran into such insurmountable difficulties that it ceased to function, and the plain fact is that for a couple of months past we might just as well have had no defense committee at all. During that period the government has had to go without millions of yards of their standard combed yarn fabrics.

Part of Blame On Manufacturers

Please understand that when I frankly admit the failure of our defense committee's efforts I intend no criticism of its members, who have done all they could. Does the blame then fall upon our combed yarn manufacturers? In part it does. For the most part they have made some effort to respond to the calls of the government and of our defense committee. But too often evasive answers were received to inquiries as to where the production of certain manufacturers was going; too often we have seen this one holding out yarns for a price far above the general market, or suspected that one of withholding available yarn on a speculation that higher prices would prevail later; too often we have heard it said that "our first duty was to our commercial trade. That this emergency buying by the government would be over some day, and that a fellow would then sink or swim, according to how well he had taken care of his regular customers during the shortage."

This last is a very real point, and one that none of us can afford to ignore. But how many of us have taken the trouble to ask our customers to hold their requirements down to their real minimum needs? How many of us have made a serious effort to prevent certain speculative operators from accumulating stocks not needed for immediate consumption? How many of our worth-while customers would not have made some sacrifice of their inventory position in order to help clothe our soldiers properly, and what do we care for the good will of the customer who would not be willing to cut his own deliveries down to his actual urgent needs in order to give a helping hand to Uncle Sam in his dire necessity?

Customers Mostly Good

My own opinion is that our customers are the same sort of people that we are: good and bad but mostly good. And that the great majority of them would not only want to do their part for their country, but would have most lasting esteem and friendship for the supplier who worked with them toward that end than for the "chiseler" whose salesmanship consisted of currying their favor while letting the needs of his country go hang. It is also my considered judgment, although sufficient statistics to completely support it are not available, that the few million extra pounds of combed yarns which the government needed so badly during this mid-winter "squeeze" could have been furnished without any serious disruption of either production or employment in our regular commercial trade.

"Business As Usual" Not Possible

But the reason for our failure to supply the government with its needs does not lie primarily at our door, not at the doors of our customers. The fault lies just as much at the door of the government itself and is due to the principles upon which the preparedness program has until very recently been based. Up to ten days ago the official slogan has been "business as usual," and every responsible spokesman told us that the defense program must be superimposed upon existing productive facilities; without any disturbance to the ordinary economic and commercial structure of the country. I might add that in my relations with both the defense authorities in Washington and with the procurement officers, I have found them notably conscientious in hewing to that line.

In our own particular case another element contributed to the tight spot which arose in the purchase of cotton goods. This was the delay in advising our industry of probable government requirements, and in asking for bids. Woolen goods were bought heavily about two months before procurement agencies entered the cotton textile markets to any commensurate extent. We had assured the quartermaster general and the defense authorities that our productive facilities were adequate to handle the emergency load of army expansion, but that assurance presupposed well-planned purchasing policies and reasonable notice of the extent and nature of the emergency needs. I am satisfied that had cotton textiles been bought at the same time and on the same scale as woolens, no acute shortage would have occurred. Even so, you must not be too ready to attribute all our troubles to government inefficiency and red tape. If any of you gentlemen had been in Washington, under the existing conditions, and charged with the same responsibility, I don't think you could have done any better job. The army and navy cannot spend any money except that which has been specially appropriated. Congress was then just beginning to make defense appropriations, and very few funds were available. It was felt—and very properly, I think—that it was more important to provide for the needs of the approaching winter than the more remote summer. Under those circumstances, without money enough to buy both, I think that you or I would have bought the woolens first, just as actually happened.

Other Industry Having More Trouble

Nor must you imagine that our small corner of the defense effort has been the only one to suffer headaches. Defense production on very few fronts indeed has run smoothly and on schedule. On December 13th, speaking before the National Association of Manufacturers, Mr. Knudson frankly admitted that the defense program was not proceeding in a fully satisfactory manner, and expressed the opinion that "the defense job . . . has not been sufficient sold to industry and labor as yet," going on to ask whether it would not be possible to "put the defense job on a war basis even if we are at peace." You may be sure that practically all industries concerned with the defense program have experienced the same difficulties that have beset us, and many more that we have been spared. For example, we have no acute tooling problem; we suffer practically not at all from the terrifically rapid obsolescence of such weapons as planes and tanks under the test of war; we have so far been disturbed by no considerable labor troubles—either shortage of skilled employees or strikes among the existing supply of skilled help. In short, our textile problem, dealing with materials identical with or differing only slightly from those which have been flowing for years in huge quantities into the ordinary commercial channels, and which can be produced on the machinery we already have, is probably one of the easiest of the entire defense effort. If we cannot clothe a soldier properly, my friends, what do you think of the chances that he will ever get the kind of gun or tank or plane that he needs?

The President has at last concluded that defense production can no longer be superimposed upon "business as usual," and he has told us so. I am among those who are in complete accord with the position taken by the President. But whether you agree with him or not is of no importance. We are going to put the defense of the country ahead of private business whether we want to or not; we are going to make sacrifices of personal preference, convenience or profit whether we like it or not. In short, we are going to put our shoulders to the wheel in a way we never have before. Our shoulders are going to the wheel either voluntarily or under the sting of the whip! Which shall it be? Can there be two answers to this question? Surely there can be only one from any patriotic American.

Words Never Won Any Wars

I have called you together today, my fellow producers, to discuss with you how we shall meet the heavier responsibilities placed upon us by the President's announcement of a complete emergency. I have admitted our past shortcomings, but it is futile to dwell further on them. Let that be water that has gone over the dam. Our concern is now with the future. What has been done before was not good enough. We must and will do better. The question before us is how we shall go about it; what means we shall use to do the better job that is required of us. It is not enough for us to pass resolutions of support and co-operation, and mail copies to the President and Mr. Knudsen. Action is what is needed. Words never won any wars.

Just as the tides of battle today are swayed as much by the industrial organization at home as by the military organization at the front, so too the will to fight must be as strong in the factory as it is in the field if victory is to reward the war effort. Hitler saw this earlier and more clearly than most of the rest of us. Nobody who has taken the trouble to read "Mein Kampf" carefully need be surprised at the success of the German arms. The German military machine does not consist of two hundred or three hundred divisions; it consists of eighty million Germans fired with the will to fight, without money, be it noted, but with enough essential war materials to turn out the needed weapons from a smoothly running, highly geared national industrial machine.

It im my belief and my recommendation that the President with the least possible delay give to Mr. Knudsen, to Mr. Baruch, or to whomever he may choose to head our defense effort, the necessary powers for keeping in line the non-co-operator and the profiteer. It is also my firm conviction that after the big stick once really exists, it could be put back in the closet and brought out only upon the rarest occasions. It goes without saying that the big stick can only be handed to a man who has the confidence of industry; I can think of no quicker road to disaster than to make national defense the football of politics. We might just as well march in a body into one of Mr. Hitler's concentration camps as to be belabored by a group of inexperienced, hostile or vindictive politicians. There can be no effective co-operation without mutual confidence.

Now coming back to our own particular corner of national defense, what course are we in this Association to steer in this stormy sea? Shall we drift about aimlessly until we either fall into the hands of the enemy or are commandeered by our own police patrols? Or shall we make a calm survey of our peril, study the charts of service and duty, pray for strength and guidance and steer a bold unswerving, unselfish course of national service? The answer is too obvious to merit putting the question.

Now let's get down to concrete details of a plan for better defense co-operation. I am not omniscient, and do not pretend to understand much about this complicated world we live in. Smarter men than I bog down in their efforts to penetrate the enveloping obscurity, and to solve our manifold perplexities. But I have a few suggestions which I shall put before you in all humility. If you can improve them I will be the first to favor discarding mine and adopting yours. If not, I would like for you to try them:

Production

As I have said above, I believe that our present productive facilities, utilized to the fullest extent, can take care of all probable government requirements, plus the legitimate requirements of our commercial customers. If this estimate is correct, it follows that any considerable plant expansion in our group would be unnecessary and a menace to the future welfare of the industry. All efforts toward increasing production should be in the direction of getting more out of our existing machinery by modernization, greater efficiency, better balancing, and by running more hours (even at time and a half for overtime, where the demand justifies the extra production).

Labor

Let us explain to our help the urgent nature of the situation, and ask for their co-operation in turning out more and better work. Where that involves overtime, the extra pay should compensate for the greater drain on their strength and leisure. We have an adequate supply of skilled labor which should be fully absorbed before adding too many hours to shifts already working. I see no reason in our case why our labor should lose any social gains; on the other hand, I can see no justification for labor to use the dire need of our country as a lever to secure still further gains. As to wages, very considerable advances have been made during the past few years. Perhaps here and there inequalities on the lower side exist which could be adjusted amicably and without interfering with production. It goes without saying that if the cost of living rises, or if exorbitant profits should be left to the mills (which seems unlikely under the existing and proposed tax legislation) wages should be adjusted accordingly.

Prices

A fair profit is an essential part of the defense program. Without the taxes from substantial profits the government will not have the money to pay for these enormous defense purchases. The only alternative is some form of Communism or National Socialism, which are the very things we are struggling to escape. I don't think procurement officials need worry too much about the general level of prices paid, because the government can regulate profits by excess profits and similar forms of taxation. We ourselves are the ones who have the most to fear from a too rapid upward spiralling of the price structure; I shan't go into that because too many of us here today remember that painful experiences of the last post-war period, and are fully aware of the dangers that lie in that sort of inflation. One point should be mentioned in connection with occasional high prices, and that is that under the pressure of forced production some marginal production comes out. I don't refer so much to the starting up of obsolete or inefficient plants; if the need is great enough they do start up, and it is a good thing, but obviously they cannot do it at prices that would be satisfactory to the more efficient units. I refer more to production that comes from mills that are efficient enough in their normal fields, but which at considerable trouble and expense try to alleviate a shortage that exists on numbers which they are not properly geared or balanced to handle. None of these people are profiteers just because they ask a high price. The profiteer is one who with no valid excuse uses the shortage caused by heavy government buying to get a price far above what common sense and decency have made the bulk of his competitors consider a reasonable level.

Procurement

We should urge Federal purchasing agencies to plan their requirements as far as possible in advance, and to let us know what they expect of us. Even if they are unable, due to technicalities, to place orders in the very distant future, they could help us immeasurably by giving out some idea of their anticipated needs.

For example, if they could tell us now that for the second half of 1941 they would probably need about so many million yards of this, so many of that, etc., we could begin to allocate the necessary production to take care of them even if the actual contracts were not placed until several months later. Months, not weeks, elapse between the opening of a bale of cotton and the delivery of a finished piece of goods, and it is impossible for the government or anybody else to obtain large quantities of cotton goods not already in production within 90 or 120-day periods.

Co-Operation

You already have a defense committee. It is a good one. You also have an exceptionally capable secretary to work with them. These people have done what they could, but it is not enough for the present emergency. I want this committee to meet at least once a week, but recognizing the burdens imposed upon the individuals appointed to this important task I propose to add two or three additional members, so that several will be able to get together for these weekly meetings without undue hardship. I want this committee to keep in constant touch with procurement officials, and to ascertain in terms of combed yarns what is going to be needed. I want the committee to make a thorough survey of our industry, finding out what kinds of yarns each can make, and how much, what proportion of each mill's production is already

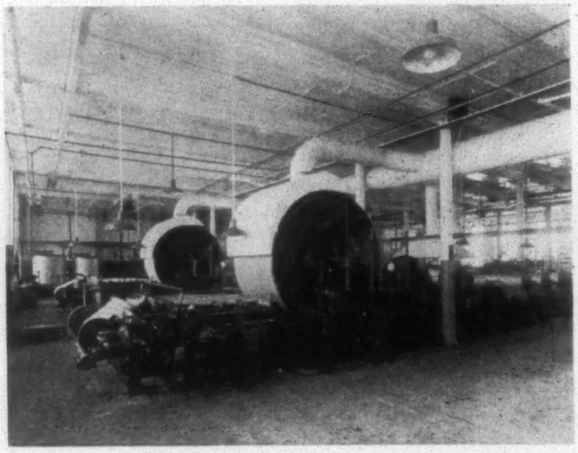
(Continued on Page 60)

Solving the Problem of Vapor Removal by Air

By Ernest J. Eaddy*

THE process of drying textile fibers after sizing presents two important problems to every textile manufacturer. First, the evaporation of the excessive solvent retained by the fibers in the process of impregnating the yarn with a dressing; second, removing the evaporated solvent from the room in which this operation is handled.

It is the latter problem which we will discuss and show (in a non-technical manner) the advantages to be had when the proper application to this problem is made, and handled correctly.



Inasmuch as water is the solvent used in most cases for putting the dressing for the yarn into solution, we will assume our vapor removal problem to be of such; and as the process of drying most textile yarn is usually accomplished by direct contact of the yarn to steam heated cylinders, we will assume that we are using a conventional slasher.

Now, the first thing that we want to find out is the amount of moisture freed into the slasher room, and this can be found by the following rules:

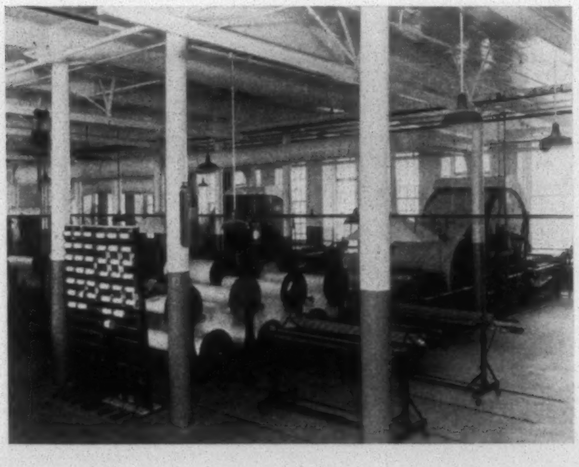
The amount of size absorbed by the yarn, for all practical purposes, is equal in weight to the weight of the dry yarn, as the yarn will absorb its own weight in size solution. This means if we are drying eight pounds of dry yarn per minute, we are liberating eight pounds of water per minute less the actual weight of size and moisture left in the yarn, which is from 15 to 20%.

Using 20% as the amount of size and moisture left in the yarn, in the above, we would have 6.4 pounds of water vapor liberated per minute when running eight pounds of dry yarn per minute.

Another method of finding the amount of moisture being evaporated on a slasher would be to find the quantity of water used in one gallon of size mixture from the size formula. Then measure the number of gallons of size used in the size box over any period. From this information determine the amount of water being used from the size box per minute in grains (using 7,000 grains to the pound of water). From the quantity being used from the size box subtract the percentage of moisture left in the yarn after drying and add the moisture which the yarn held before sizing. This difference would be the amount of moisture being evaporated in grains per minute.

After figuring the amount of moisture being released in the room per minute, our next step would be to properly take this moisture out by designing an air exhausting system which will pick up this moisture, and also installing an air supply system which will supply our exhausting system with the air being exhausted.

Usually the method used to take the moisture from the slasher is an exhaust fan working in connection with an arrangement of hoods. However, it must be remembered that more than an exhausting arrangement is necessary, for, if we expell air from the room, this air has to be replaced. Therefore, it is evident that in designing a vapor removing system, provisions should be made to supply the room with a quantity of air equal to the amount of air being removed. Usually the things that are overlooked in meeting this problem are: How many cu. ft. of air will be required to suspend, or "pick-up," the quantity of water



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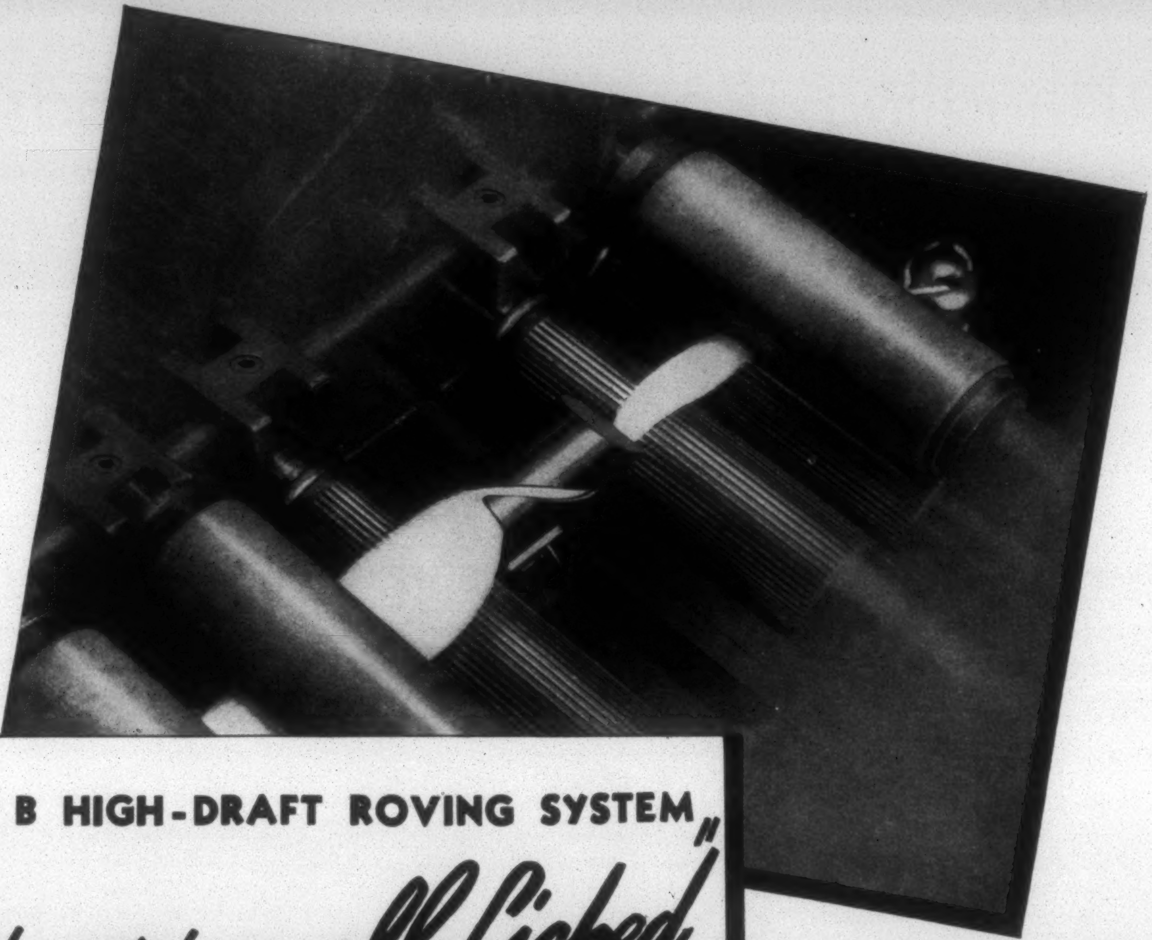
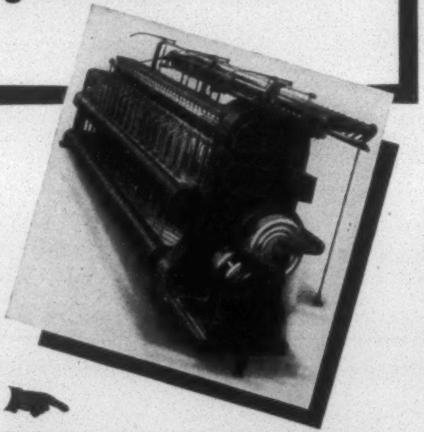
*Owner and Engineer, The Textile Shop.



H & B HIGH-DRAFT ROVING SYSTEM

"It's got 'em all licked"



THE NEW H & B HIGH-DRAFT ROVING FRAME WITH 12 MAJOR FEATURES

—that's what a textile man told us recently about the H & B High Draft Roving System, but you don't have to take his word for it. Let the facts speak for themselves:—

This system is so simple that it can be economically applied to ANY recognized make of existing frame as well as to the new H & B frame.

Its heart is our Patented Scroll Condenser, made of Bakelite to eliminate static, which guides the sliver between the two drafting zones and folds in the flank fibres with a half turn of twist, thus contributing to a more uniform and a stronger yarn.

By this method sliver may be drafted up to 35 to produce up to 6 hank roving IN ONE OPERATION. To produce finer roving, the system's product goes to conventional jacks or fly frames.

Whether you want entirely new roving frames or simply to modernize your old frames, it will pay you to consult H & B.

H&B

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We are proud to have been selected to contribute a large share toward National Defense. A complete new organization and plant has been established for this duty. The textile machinery plant, in no way affected, is concentrating with renewed vigor on supplying an ever increasing number of mills.

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EXPORT DEPARTMENT: United States Machinery Co. 115 Broad St., New York, N. Y., U. S. A.

Handling, Routing, and Methods of Conveying Stock within the Plant

The first part of the dicussion of the Eastern Carolina Division of the Southern Textile Association, reporting the meeting held in Durham, N. C., on November 2nd, was published in the January 1st issue. This meeting was devoted to discussion of handling, routing and methods of conveying stock within the plant. In the January 1st issue, the discussion covered the objects of an ideal system of handling (ten of them), and proceeded through the opening and cotton handling. More of the discussion follows, with P. B. Parks, Jr., superintendent of the Erwin Cotton Mills No. 5, Erwin, N. C., leading the discussion.

Methods of Handling Picker Laps

Mr. Parks: I think that system has developed from necessity, as one we had was. We got in an awful push once. We did not have a drum to which we could hook up, so we hooked up our hoist to an automobile. We ran that old truck out and grabbed a bale and ran it back and dropped the bale down. I suppose this developed out of that.

I can scarcely think of anything between the breaker picker and the finisher picker that would be worth talking about in connection with this subject, but there are various methods of handling laps and storing laps which we might discuss. Hod many of you wrap your laps with paper? I see one hand raised. What is the purpose of wrapping them?

J. O. Cofield, Carder, Pilot Mills Co., Raleigh, N. C.: To save waste.

Mr. Parks: How far do you carry your laps?

Mr. Cofield: About 60 feet. We have an elevator that carries them.

Mr. Parks: I suppose, reading between the lines, you had a very strong draft in that elevator that tore your laps up, didn't you?

Mr. Cofield: Yes, sir.

Mr. Parks: So you wrap them. Mr. Knight, do you wrap your laps?

R. H. Knight, Carder and Spinner, No. 6 Mill, Erwin Cotton Mills Co., Durham: No, sir, we do not.

Mr. Parks: How high do you lift them on your elevator?

Mr. Knight: I suppose about 14 or 15 feet.

Mr. Parks: What do you do about the air current in the elevator?

Mr. Knight: We keep the door closed down at the bottom most of the time, or we try to; it is mighty near to impossible to keep it closed.

Mr. Parks: Mostly you just cuss, eh?

Mr. Knight: Yes.

Chairman Parks: How far can you go in waste, gentlemen, before wrapping would be a paying proposition just rests with the individual mill. Naturally, if you do not have much waste it would not pay to wrap them; if you do have a lot it would pay.

For storage purposes, is it worth while to wrap laps against the time when you may have a failure of power in the opening room or something like that? Mr. Lanier, do you wrap yours?

Mr. Lanier: No, sir.

Mr. Parks: Do you ever have any extra laps?

Mr. Lanier: No, we keep ours used up pretty closely. However, there is a paper jacket that drops over the lap, similar to the paper tube that dry cleaners use to wrap clothing in, that is pretty effective, I think.

Mr. Parks: How do you slip it off after the lap expands? You know the lap expands or fluffs up in storage.

Mr. Lanier: I do not know; I never used one.

Chairman Parks: Mr. Cofield, how do you wrap your laps?

Mr. Cofield: We have a table there on which the man wraps them. When we take the laps off the picker we lay them on the table. The paper is ready cut to the right size for wrapping the lap, and we have adhesive paper tape for fastening it.

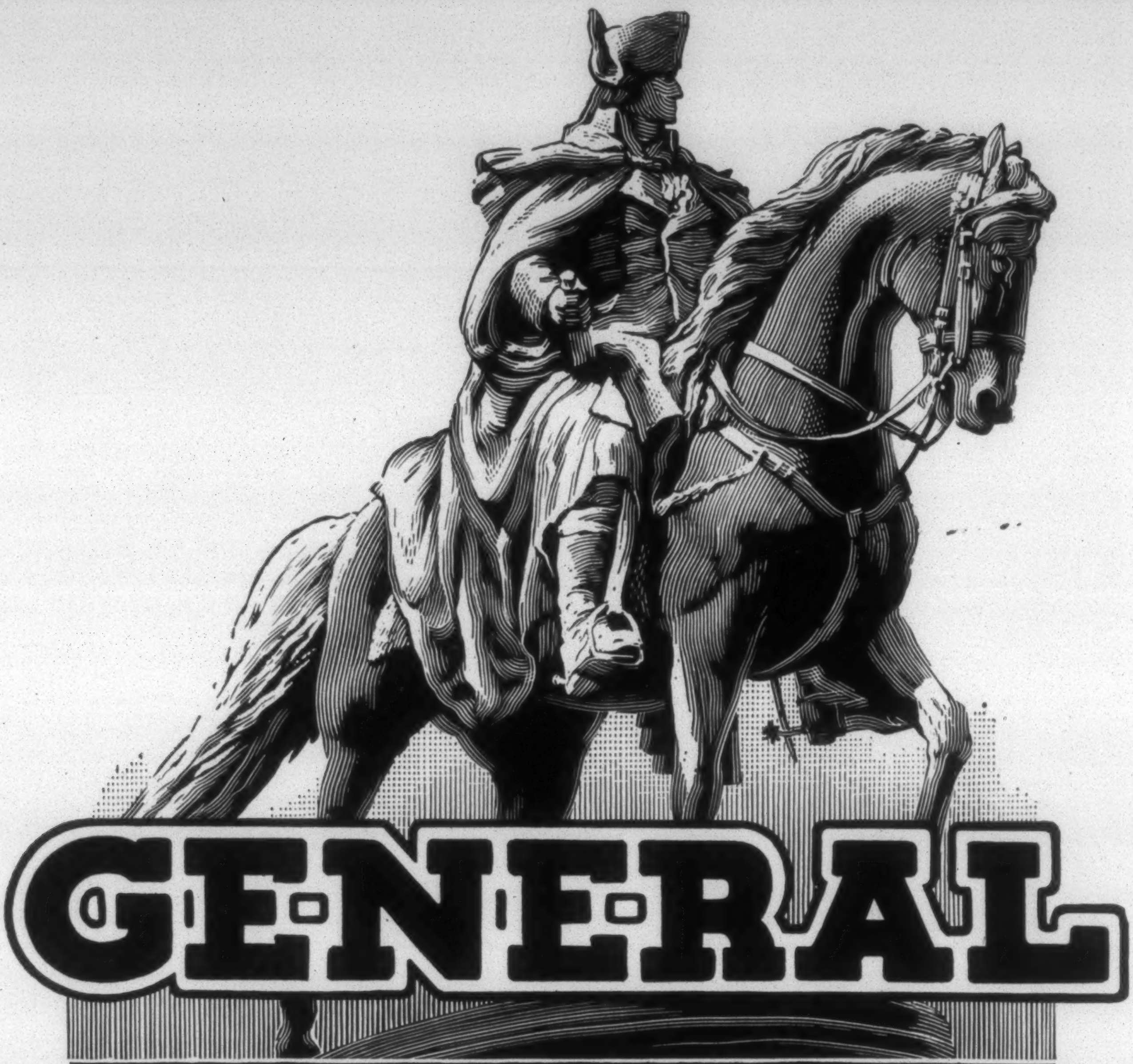
Mr. Parks: I guess your man gets to be pretty expert, doesn't he?

Mr. Cofield: Yes, sir.

Mr. Parks: Now, how do you weigh laps?

Mr. Oldham: We have a platform scale and weigh the laps at the end. We have eleven pickers. The scale is pushed along. When you have eleven pickers you cannot stop every minute to see what the lap will weigh. The platform scale is fairly accurate, and you can get along much faster and much easier with it by pushing it along the floor and weighing the laps on the end. The scale runs on a track.

Mr. Parks: From the standpoint of handling, aside from accuracy, I am inclined to agree with Mr. Oldham that weighing the lap on the end will be a great time-



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saver. If it does not damage the lap and is accurate enough then there is something to be said for it. Mr. Lanier, over at your plant do you use that type of scale or do you have a cradle type that you set the lap in?

Mr. Lanier: We use a platform scale, but it is not on tracks. The laps are weighed on the side. I think our system could be improved on, but we have to use one man in the picker room and I try to keep enough work for him to do, even if it is unnecessary work, to keep him from getting lonesome.

Mr. Parks: I think you would make him right much happier if you did put down a little piece of half-oval track there, though. Also, I do not think you would have to send your scales off as often to be reworked if you cut out that vibration caused by running over the boards. If you have tracks they keep it the right distance away, and the man does not have to kick it around.

Mr. Harden, what can you tell us about storing laps?

Storing Laps on Trucks

Mr. Harden: I see no reason for ever storing any laps. We have a truck that carries six laps, three on a side. We weigh the laps horizontally rather than on the end; then we pick them up and put them on the trucks, hanging them on hooks. The hooks are as high as you can reach, and the lap actually takes up less space on the truck than on the floor, because you can get it up high. Those trucks are narrow; you can get them close together. We have built I think about 100 of those trucks since I have been in the mill, and we find it a very economical way to store laps between the picker room and the card room. I think they are a good investment, no matter how many of those trucks you need, because the trucks loaded with laps will not take any more space than laps on the floor. The truck is narrow, as I say; the laps come almost halfway through the truck.

Mr. Parks: Where do you keep the trucks?

Mr. Harden: They stand in the spare floor or wherever you would put your laps.

Mr. Parks: I mean when you take them out.

Mr. Harden: They put them in the storage space.

Question: Do you find that your laps sag from hanging them up?

Mr. Harden: Of course they sag a little, but I think there is much less disadvantage from that sagging than from storing the lap on end.

Chairman Parks: Mr. Harden probably uses his laps up pretty quickly, and he probably arranges to use the laps in rotation, using the oldest one first. Of course, if you are going to keep them semi-permanently—three or four days—it is probably better to store them on end, to prevent too much aeration of the cotton.

A Member: I wonder if Mr. Harden is troubled with the men pushing one truck up too close to another and taking bites out of the lap.

Mr. Harden: We have to be pretty careful to watch out about that. Of course, it happens sometimes.

Mr. Oldham: We have trucks that carry six laps; we stand them on end. To have the number of trucks Mr. Harden has and to have most of the stock on trucks sounds pretty good, but in our plant we could not use that system. We use a truck nine feet long.

Mr. Parks: If you use a truck just wide enough for a lap to sit in, why should it not be just as economical to use a truck like Mr. Harden's and just roll it up to the card and dump it out on end?

Mr. Oldham: We have not room enough.

Mr. Parks: You need to rebuild, don't you? Your alleys are too narrow. In that case you might have a truck that would carry only three laps, in which case the lap carrier might take three on the truck and one on his shoulder and really go to town.

Now, what about conveyor trucks? I have understood there are systems very much like those used in Armour's and Swift's packing houses in Chicago, with chains that run overhead on pulleys. On those chains are fastened suspension hooks, and the laps are hung on the suspension hooks. The chain goes around the card room and the laps stay up there until the man at the card needs one; then he just reaches up and picks it off.

I am going to draw a diagram of a mill. Most mills are long and narrow, so I shall draw it that way. Naturally, we expect the picker room to be on the back end of it. Of course, I realize that most of us are not going to have opportunity to lay out a mill as we want it, but it is well to know what is the ideal system. The card room comes next to the picker room, with a line of cards the full length of the loom; then come the sliver lappers or the drawing frames, and then the roving processes. That is one system. The other system (and there are modifications of both) would be to have the cards in lines with the ends accessible to the picker room and then have the sliver lappers and the drawing frames with the ends presented to the ends of the cards, so that the cans would be pulled right in in position without having to go around anything; then come the roving frames. Say the card room is on the second floor, where ought the elevator to be to get down stairs with the finished roving?

A Member: It should be at the end, should it not, after the speeders? Do you mean to carry the speeder stock off?

Mr. Parks: The whole top floor is taken up; there is no more top floor. Where should the elevator be?

Mr. Lanier: I should say on the side, between the roving machinery.

A Member: Would it not depend somewhat on the layout down stairs?

Need Big Alley

Mr. Parks: I thought someone would ask me that long before now. We have to consider where the next process is, where the stock is going next. Where is the spinning room? There we have one of our cardinal points, and that is to move the stock in the straightest line possible the shortest distance with the least effort.

In this connection I want to point out something that we do get a chance to alter. Most of us do at some time or other change the position of the machinery in the room , if we live long enough. When you do that, by all

(*Continued on Page 52*)

PREPAREDNESS

WE hear much of this word today—in its physical sense. But, of what use are machines and their product if their usefulness is sabotaged by dissension and strife? ✶ In thinking of the New Year let us lay aside petty differences and reaffirm our faith in those principles that have given Americans more of the better things of life.

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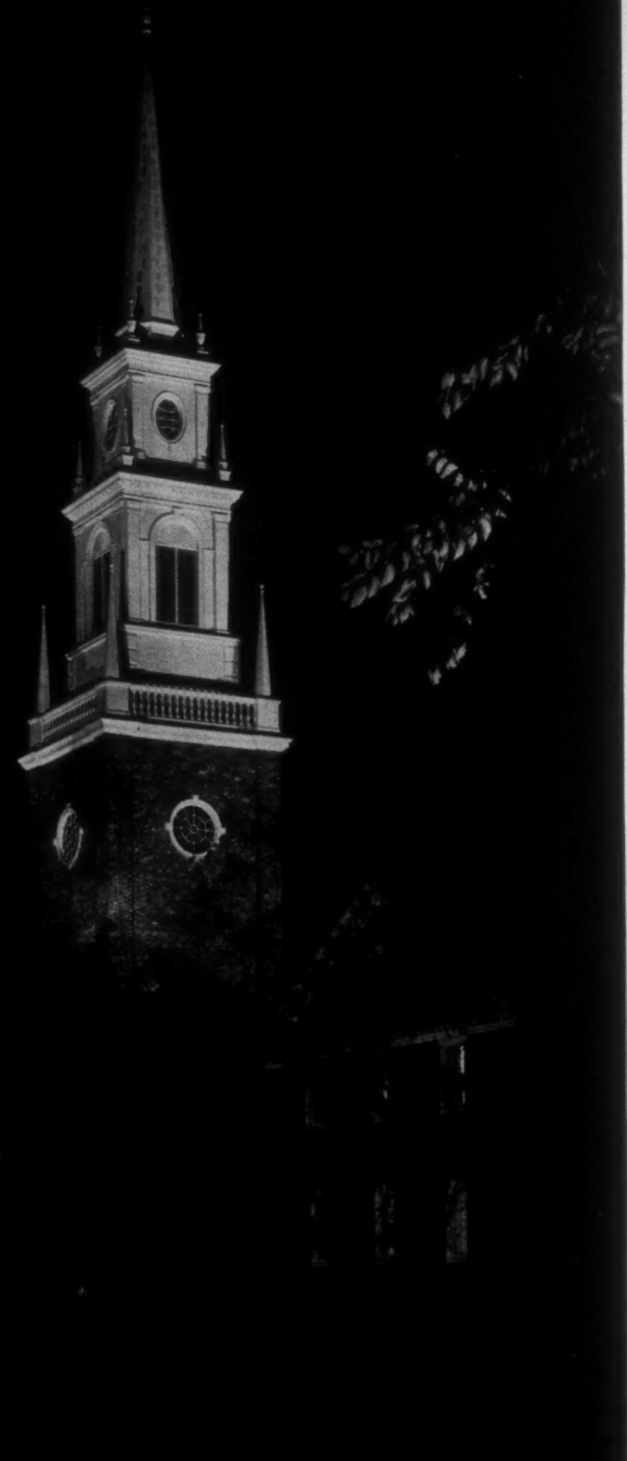

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Utilization of Cotton and Other Materials in Cordage and Twine

Following are the summary and conclusions of a 48-page report recently issued by the U. S. Department of Agriculture on the utilization of cotton and other materials in cordage and twine. The complete report carries a great deal of information relative to this industry, and covers the subject thoroughly.

BETWEEN 3 and 4 per cent of the total quantity of cotton consumed annually in the United States during the years since 1925 has been used in the manufacture of cordage and twine. Consumption of cotton in this use is estimated to have averaged more than 200,000 bales annually during the last seven years and to have totaled 248,000 bales in 1937.

In addition to cotton, a number of other fibers are used in cordage and twine. These fibers include henequen, sisal, abaca (Manila fiber), istle (Tampico fiber), and other hard fibers; and jute, hemp and flax. Paper also is used in the manufacture of twine. Of the total of 496 million pounds of cordage and twine manufactured in 1937, 315 million pounds was made of the various hard fibers; 100 million pounds of cotton; 50 million pounds of jute, hemp, flax, etc.; and 31 million pounds of paper.

Production of all types of cordage totaled 132 million pounds during 1937, and comprised 27 per cent of the total production of cordage and twine. About one-fifth of all cordage is made from cotton and is used for clothes lines, window sash cord, plow lines, and a variety of other uses where flexibility, softness and appearance are of major importance. Practically all of the remainder is made from hard fibers, chiefly abaca. These other types are used chiefly for hoisting, marine ropes and other requirements where high tensile strength is the most needed quality. This strength either cannot be secured from cotton or can be obtained only at a much higher cost and by use of much heavier cordage. Since cotton and other types of cordage generally are used for different requirements, competition between the two is limited.

Production of all types of twine other than binder twine totaled 207 million pounds during 1937, or 42 per cent of the total production of cordage and twine. In general the finest, lightest twines are made from cotton and the coarsest, heaviest twines are made from hard fibers. Jute, flax and hemp twines occupy intermediate positions between the two, overlapping in size with the coarser cotton twines and the finer, hard-fiber twines. Of the total quantity of twines produced during 1937, 35 per cent were cotton; 26 per cent were hard-fiber; 24 per cent were jute, hemp, flax, etc., and mixtures thereof; and 15 per cent were paper.

Two-thirds of the cotton twine manufactured consists of twines used chiefly for tying purposes such as wrapping twines. These twines dominate the small-package field, are not used for heaviest packages, but compete directly with jute and other twines for tying medium-size packages. Consumption of cotton tying twines has been adversely affected by increased use of packages not requiring tying such as bags, and by gummed-paper tape, which competes on the basis of time saved clerk and customer rather than on the basis of price.

Another 13 per cent of the cotton twine manufactured consists of seine and other similar twines which are used in the manufacture or repair of fishnets or as fish lines. In those uses cotton meets certain well-defined requirements which do not permit ready substitution. Consumption depends largely on fluctuations in the volume and profitability of fishing activity.

About one-fifth of the cotton twine produced is used for sewing and other miscellaneous purposes. These twines usually are identical with certain types of cotton tying twines and their use is influenced by similar technological and price comparisons with other kinds of twine. In addition their use is controlled by the requirements and conditions prevailing in each use.

An additional 32 per cent or 158 million pounds of the total production of cordage and twine during 1937 consisted of one product, binder twine. Binder twine is a single-ply twine, made chiefly of sisal and henequen, which is used with binders for automatically tying bundles of the various small grains, flax and grass-seed crops, and corn during harvesting. There is no technological objection to the use of cotton for this purpose which could not be overcome, but the fibers now used are so low in price that use of cotton is precluded.

Total production of all types of cordage and twine other than binder twine has varied considerably from year to year with business conditions and other factors, but appears to have shown little or no sustained increase during the last 30 years. However, cotton's share of this production has increased from 18 per cent or less before 1925 to 29 per cent in 1937. Production of binder twine has declined tremendously since 1914 as a result of declining exports, increased imports, and declining consumption attendant upon decreased acreage of small-grain crops and increased use of combines.

According to reports received from manufacturers, an

(*Continued on Page 58*)

THE MIRACLE OF
MARCUS HOOK

THIRTY YEARS AGO, on December 19, 1910, a group of engineers and scientists gathered in a new, unusual plant at Marcus Hook, Pa. This was to be the first commercial production of a man-made textile fiber in the U. S.

Finally, someone gave a signal. Machinery sprang to life. And from the equipment there began to issue slender filaments which were led through a chemical solution, then collected in the form of yarn.

A new American textile industry was born!

The progress of America's rayon industry in the thirty years that have passed since that first successful production in the Marcus Hook Plant of American Viscose Corporation is now history. Rayon has marched steadily ahead as it has made possible new, more beautiful and more durable fabrics. Today, it employs 49,000 American men and women, and annually produces more than 300 million pounds of yarn. An outstanding example of American achievement.

From the first, American Viscose Corporation has figured prominently in every major development. It pioneered many vital advances for cost reduction, price reduction, and quality improvement. It established the Crown Quality Control Plan to assure consumers the quality they want in rayon merchandise. It instituted the "Textile Unit," a full-sized textile research plant, in order to better serve the industry.

American Viscose Corporation is proud of its 30-year record of achievement. And now, embarking on its fourth decade, it pledges continuance of the progressive policies which have stimulated the growth of the American rayon industry.

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Record Breaking Activity Marks 1940 for Textile Industry

THE year 1940 closed with record-breaking activity in the textile industry, states the current issue of the Rayon Organon, published by the Textile Economics Bureau, Inc. All previous domestic consumption records were broken for three of the four major textile fibers, including cotton, wool and rayon. Consumption of raw silk, however, due to its replacement by rayon in many important consumer products, was the lowest in 20 years.

Evidence of the rapid pace by which the textile industry expanded during 1940 is furnished by the Federal Reserve Index which showed that this industry alone recorded an increase of 34 per cent in output between April and November.

Cotton Consumption Mounting Rapidly

Domestic consumption of cotton approximated 8,000,000 bales in 1940, which is the highest annual cotton consumption on record and a gain of 8 per cent compared with the 1939 total. While cotton consumption averaged 665,000 bales monthly for the year as a whole, average monthly consumption reached a high level of 725,000 bales during the four closing months of the year. This increase in consumption during the latter months of 1940, although to some degree the result of the large purchases of cotton textiles under the defense program, was principally caused by the increasing demand for cotton that comes with expanding industrial and business activity.

Wool Use At Highest Levels Since 1918

Consumption of raw wool (scoured basis) is estimated at 405,000,000 pounds for 1940, a total slightly higher than the 1939 figure. Through November, the *Organon* points out, apparel wool consumption totaled 276,000,000 pounds, 30 per cent of which was foreign wool. During the first seven months of the year, average monthly apparel-class wool consumption was lower than in the corresponding period of 1939. Beginning with August, however, the effect of the large purchases of wool clothing for the nation's armed forces became apparent and, for the period October through December, apparel wool consumption reached the highest levels since 1918.

The consumption of carpet-class wool for the eleven months of 1940 amounted to 88,500,000 pounds, a decrease of 8 per cent from the corresponding 1939 period, all of which was of foreign origin.

Silk's Position Continues From Bad To Worse

The annual consumption of raw silk in 1940, including re-exports, is reported at 312,867 bales, which is the lowest annual silk consumption in nearly two decades, indicating that the competitive position of silk during the past year continued from bad to worse. This was due primarily to the replacement of silk by rayon in many important apparel articles in great demand by individual consumers.

Rayon Yarn Consumption At All-Time High

Domestic rayon filament yarn consumption in 1940 set a new all-time high record with an estimated total of 390,000,000 pounds, an increase of 8 per cent compared with the previous record year of 1939. On the other hand, rayon staple fiber available for consumption, which amounted to about 96,000,000 pounds in 1940, was slightly under the 1939 level of 98,700,000 pounds. Imports of staple fiber in 1940, included in this consumption total, amounted to about 16,000,000 pounds, a drop of 65 per cent from the 1939 level. Production of domestic staple fiber, however, rose from 51,300,000 pounds in 1939 to approximately 80,000,000 in 1940, a gratifying increase of 55 per cent which almost completely offset the drop in consumption of imported staple fiber.

Supply Situation Varies Greatly

The year-end inventory positions of the various fibers varies greatly, ranging from a high surplus for some products to a minimum working level. For cotton, the surplus problem still dominates the scene in spite of the year's record consumption level. The year-end stock of Government-owned and loan cotton approximated 11,000,000 bales, while most recent forecasts put the 1940-41 cotton crop at 12,686,000 bales. Without fear of contradiction, states the *Organon,* it may be said that the supply of cotton is ample to meet any contingency.

Stocks of apparel wool in the United States at the close of 1940 were higher than at the end of 1939. To supplement this supply already on hand, adequate quantities of foreign wools are available as large quantities which were shipped to other countries are now available to American buyers because of the British blockade. The agreement recently concluded between the United States and Great Britain covering the storage of 250,000,000 pounds of Australian wool in this country assures the United States access to adequate supplies of foreign wool.

Rayon Yarn Stocks Exceptionally Low

The domestic rayon filament yarn industry, although operating at capacity, closed the year 1940 with only a four days' supply of yarn on hand at producers' plants, which is essentially the irreducible minimum. At no time during the entire year 1940 did stocks in the hands of

(*Continued on Page 58*)

Above: Hopedale **At right:** Atlanta

Draper Warehouses Have Huge Quantities Of 15,000 Different Parts For Your Draper Looms

Each of the three Draper warehouses carries several months supply of each of its stock items—over 15,000 different items in Hopedale, 10,219 in Spartanburg and 8,817 in Atlanta.

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Erecting, Overhauling and Fixing Looms

By Frank D. Herring

Following is the fourteenth chapter of a series of articles on loom fixing and loom maintenance by a practical mill man. Accompanied by illustrations of all portions of the loom, this series goes into minute detail explaining the various motions and their settings, timings, repairs, etc.

Uneven or Wavy Cloth

Under this heading I refer to cloth in which the filling yarn has not been layed uniformly. This is usually caused by a faulty let off or delivery of the warp yarn from the loom beam, and numerous things can and do cause this faulty delivery. However, uneven cloth is sometimes caused by faulty operation of the take up motion. It is also sometimes caused by excessive lost motion in the crank arms. When one or both of the crank arms are loose and the lay is turned over slowly or by hand, the lay will not be carried as far as when the loom is running full speed; and, consequently, there will be a slight break or opening in the uniformity of the weave or fabric. This is especially pronounced on rayon and certain other similar fabrics.

To fix a loom making uneven cloth, proceed in the following manner; first check the crank arms, and if excessively loose tighten them correctly. This is vitally necessary for numerous other reasons anyway. By close observation the fixer can readily determine whether the uneven cloth is being caused by faulty operation of the take up or the let off motion. If a portion of the cloth has the normal construction or amount of picks and a portion of it has thick places or too many picks, it is caused by faulty operation of some part of the take up motion. Should a portion of the cloth contain the required number of picks and a part of it a deficiency or too few, the trouble will be caused by a faulty let off. There will be some very remote exceptions to the two above statements, but they will be so very unusual and far between that I do not consider them worthy of mention.

Should the appearance of the cloth indicate faulty take up motion, proceed as follows to correct the trouble: check the take up roll to determine if it is binding, or has excessive lost motion or wear in either of the take up roll bearings. Also make sure that the take up roll journals or spindles are well lubricated and work perfectly free in the take up roll bearings. Next follow the entire chain of the take up gears through from the take up roll gear to the driving gear and make sure that they all work perfectly free of any binding whatsoever; and that all gears are meshed properly, and that the teeth in all gears are not excessively worn or broken. Check the cam shaft bearings, as a loose cam shaft bearing will affect the take up motion by allowing the driving gears to slip out of mesh.

The above procedure applies to the positive drive take up motions with which most all of the late model looms are equipped. However, when using the old type take up motion, it will be necessary to check and make sure that the sword is tight on the rocker shaft and that the take up pawl brackets are correctly adjusted and thoroughly tight. Also check the tip end of the take up pawl and the rachet gear to determine if they are excessively

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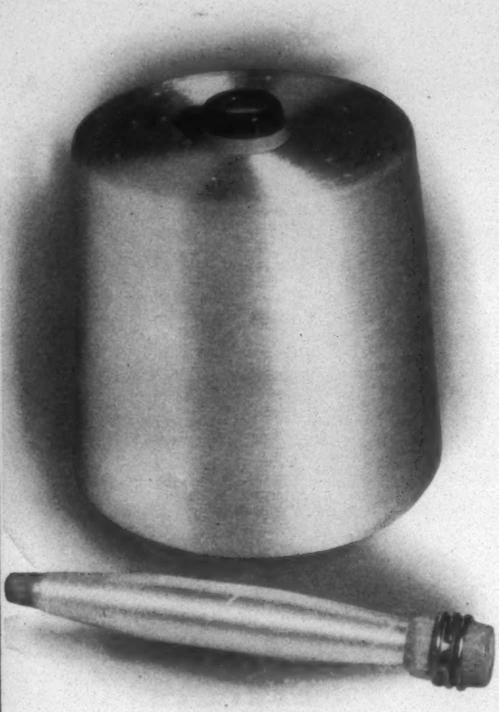

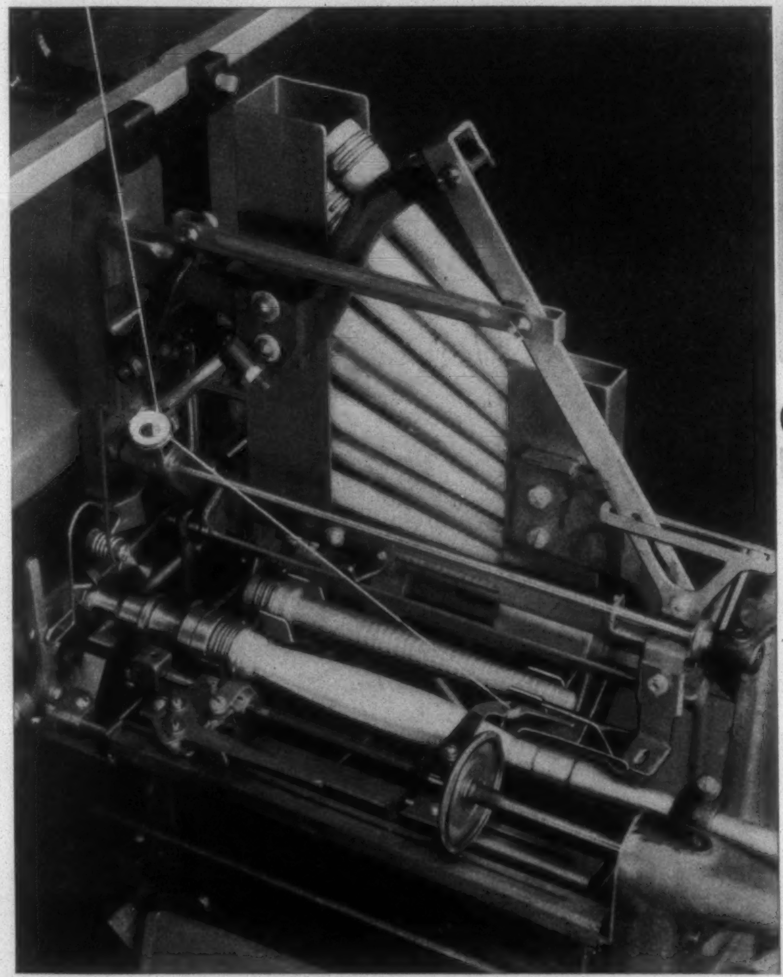

Above — large supply package which reduces end breakage. This package is magazined in the creel, providing a continuous supply of yarn and eliminating stops for packages running out.

Below — the No. 99 loom bobbin. Note parallel sides and smooth surface, produced by the Traverse Wheel method of controlling bobbin diameter that gives best loom results. "Layer-lock" wind is used.

The Universal Automatic (No. 99) winds rayon, wool, worsted, cotton and other fibres—at a considerable saving in winding cost.

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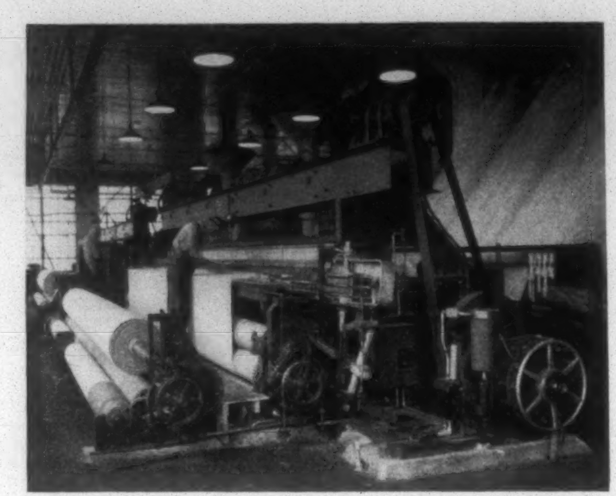
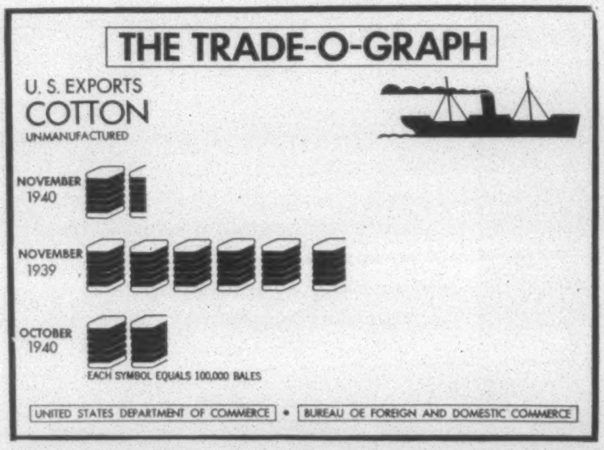
Photo of Largest Loom

In the January 1st issue we carried a short note mentioning a loom recently installed at the Brandon Duck Plant in Greenville, S. C. The loom has an overall width of 30 feet and is capable of weaving cloth up to 270 inches wide. President C. E. Hatch was kind enough to lend us a photograph of this loom which we are presenting here.




THE TRADE-O-GRAPH
U. S. EXPORTS
COTTON
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EACH SYMBOL EQUALS 100,000 BALES
UNITED STATES DEPARTMENT OF COMMERCE
BUREAU OF FOREIGN AND DOMESTIC COMMERCE

Use of Cotton in November Reached Large Volume

Washington, D. C.—The Bureau of Agricultural Economics reported that domestic cotton consumption in November was the highest on record for that month, but pointed out that exports were four-fifths lower than those a year earlier.

Domestic consumption of raw cotton in November totaled 774,000 bales as against 719,000 bales in November of last year. The seasonally adjusted index of consumptiton touched an all-time high, which was 135 per cent of the 1935-39 average.

Total domestic consumption in the first four months of the season was 2,809,000 bales, against 2,660,000 bales in the corresponding period last season.

"Trade comments," the report said, "indicate that mill activity continued high through the first three weeks of December.

"If the present level of consumption continues, it appears likely that a new high record of at least 8,500,000 bales will be made this season."

Exports of United States cotton totaled 145,000 bales in November, against 195,000 bales in October and 584,000 bales in November of last year. For the first four months of the current season exports totaled 495,000 bales, or only 21 per cent of those in the corresponding period last season and the lowest since 1873.

Exports from Brazil through October were approximately one-third below those for the corresponding period a year earlier. Brazil already has shipped nearly twice as much cotton to Canada this season as in all of last season, the Bureau said, but United States cotton exports to Canada have been only about 40 per cent of what they were a year earlier.

1940 Cotton Crop Loans $130,899,301

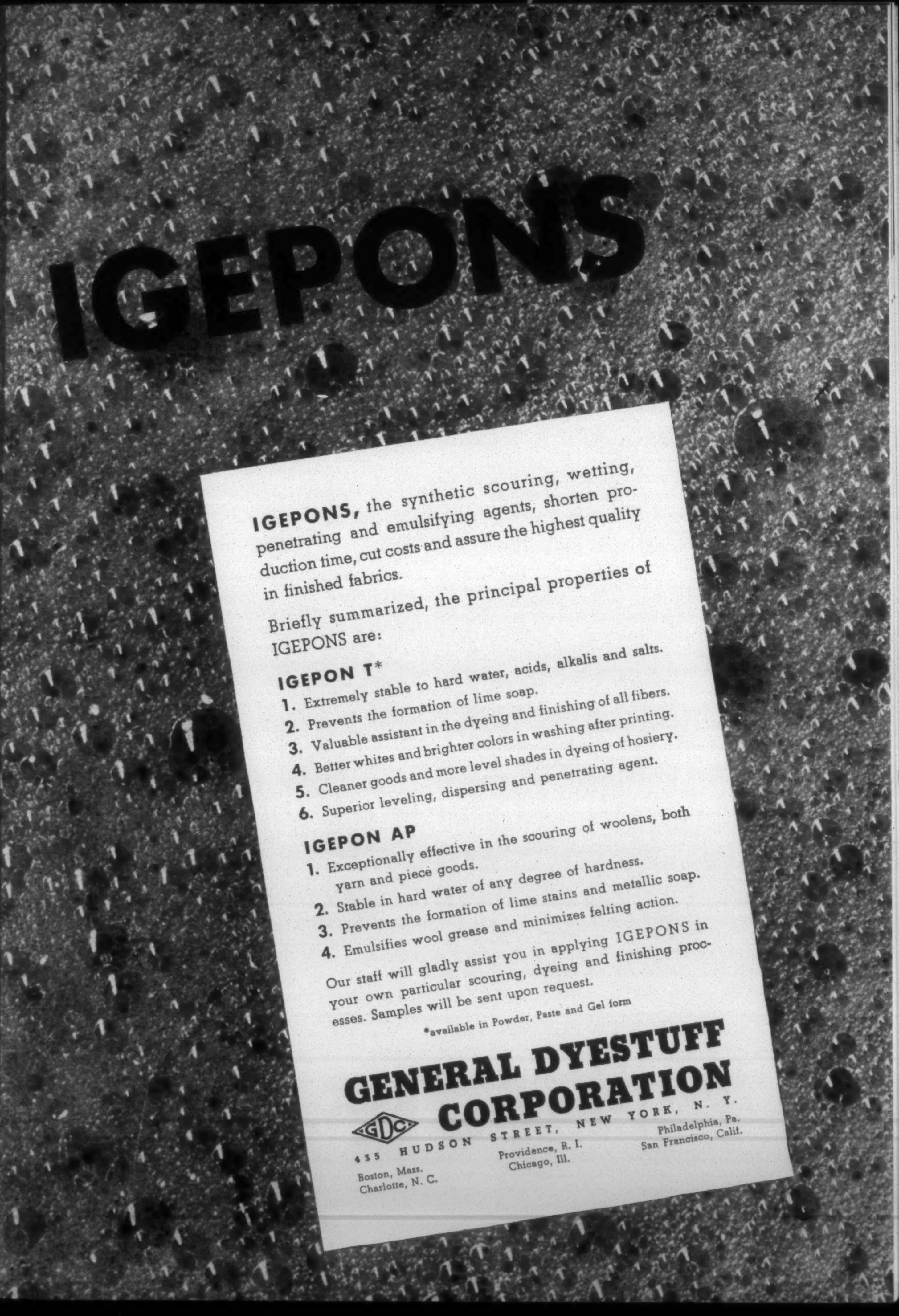
Washington, D. C.—The Commodity Credit Corp. announced that through Jan. 6, 1941, loans made on 1940 crop cotton by the corporation and lending agencies aggregate $130,899,301 on 2,715,381 bales.

Hannah Pickett Mills Donate Two Ambulances To Britain

GIFT OF HANNAH PICKETT MILLS, ROCKINGHAM NORTH CAROLINA
THROUGH AMERICAN FIELD SERVICE

GIFT OF HANNAH PICKETT MILLS, ROCKINGHAM, NORTH CAROLINA, THROUGH AMERICAN FIELD SERVICE

Shown above are two ambulances that have been donated to the British by Hannah Pickett Mills, Rockingham, N. C.



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1. Extremely stable to hard water, acids, alkalis and salts.
2. Prevents the formation of lime soap.
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4. Better whites and brighter colors in washing after printing.
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Japanese Cotton Goods Quota Continues

New York.—Assurances have been received here that Japan will not take advantage of the fact that the agreement between the two countries limiting the export of Japanese cotton goods to the United States expired December 31st and has not been renewed, according to Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, and one signer of the original agreement in 1937.

"These assurances mean that the Japanese will continue to observe the quota restrictions that have been in effect for the past year, and that no alarming influx of Japanese cotton goods may be feared," said Dr. Murchison.

It is understood here that these assurances have been made directly to Dr. Murchison, who was chairman of the American Textile Mission which visited Japan in January, 1937. They are especially welcomed at this time when the broad textile demand and the stronger price structure of our textile markets combine to offer inducement for an enlarged volume of imports. Particularly is this true when Japan is reported to have upwards to one and one-half billion square yards of cotton goods in storage, a market for which is being sought.

"The present decision of the Japanese to continue a policy of restriction is a voluntary action, wholly unsolicited by the American industry, and designed to demonstrate the good will of the Japanese textile interests during this period of high tension between the two countries," Dr. Murchison said, pointing out in addition that the "Japanese action is a declaration of intention which does not involve any commitment on the part of the American industry."

The original understanding between the two countries was arrived at in Osaka January 22, 1937. The members of the Mission were Donald Comer, Cason Callaway, Harry Bailey and Dr. Muchison, with Robert W. Philip acting as secretary. It was renewed, with certain revisions, two years later and stipulated a maximum quota of 100,000,000 yards annually of Japanese cotton piece goods exported to the United States.

During the entire period of the understanding, Dr. Murchison pointed out, "the Japanese have kept well within the quota limitations, thus relieving the American cotton textile industry of a type of competition which four years ago threatened disaster."

Within recent months the Department of Justice has expressed its informal opinion that the understanding is illegal. For this reason it was not renewed at the beginning of 1941.

G. E. Orders 360 Million in 1939—654 Million in 1940

Schenectady, N. Y.—Orders received by General Electric Co. during the year 1940 amounted to $654,190,000 compared with $360,748,000 for 1939, an increase of 81 per cent, President Charles E. Wilson announced. Orders covering equipment for National Defense purposes amounted to approximately $250,000,000, with the result that the total volume of business in 1940 was greater than that for any other year in the company's history.

In the final quarter of 1940, orders received reached the all-time record three-months' total of $256,380,000 compared with $112,166,000 for the same quarter of 1939, an increase of 129 per cent.

Free Cotton Goods Offer Made for New Cotton Cut

Washington, D. C.—The Agriculture Department has offered cotton growers $25,000,000 worth of free cotton goods if they would reduce 1941 planting sufficiently to cut a million bales off the government's previously announced production goal of 12,000,000 bales.

The offer was made, Secretary Wickard said, because the war had virtually closed export markets; and action was needed to prevent further accumulation of surpluses under government loans. Loan stocks now total about 12,000,000 bales.

Under the offer, each cotton farmer agreeing to a further reduction of his acreage would receive government stamps which could be used for purchase of cotton goods at regular retail stores. The stamps would be redeemed by the Agriculture Department.

Farmers would receive stamps at the rate of 10 cents for each pound of cotton they normally would have produced on the unplanted portion of their acreage allotment. The maximum amount of stamps would be $25 for sharecroppers and tenants and $50 for owner-operators of more than one farm, or of a farm operated by more than one tenant. Stamps would be divided among owners and tenants on the same basis they divide the crop.

For example, a farmer with a 10-acre allotment would receive $25 worth of stamps if he planted only nine acres, assuming that his normal yield was 250 pounds per acre.

Wickard emphasized that the offer supplemented other phases of the cotton control program under which farmers receive soil conservation and parity payments for planting within their acreage allotments.

He said reductions made under the stamp plan would not affect a grower's acreage allotments in 1942 or subsequent years.

Wickard said this program would be accomplished by an "intensive campaign" to encourage improved living standards among low-income cotton farmers through production of more garden, food and feed crops.

The cotton stamp program, the Secretary said, should contribute "materially" to re-employment of labor in cotton mills, garment factories, wholesale and retail stores and transportation systems.

"It means," he said, "that not only farmers, but also labor, business and consumers would profit from the operation of the program."

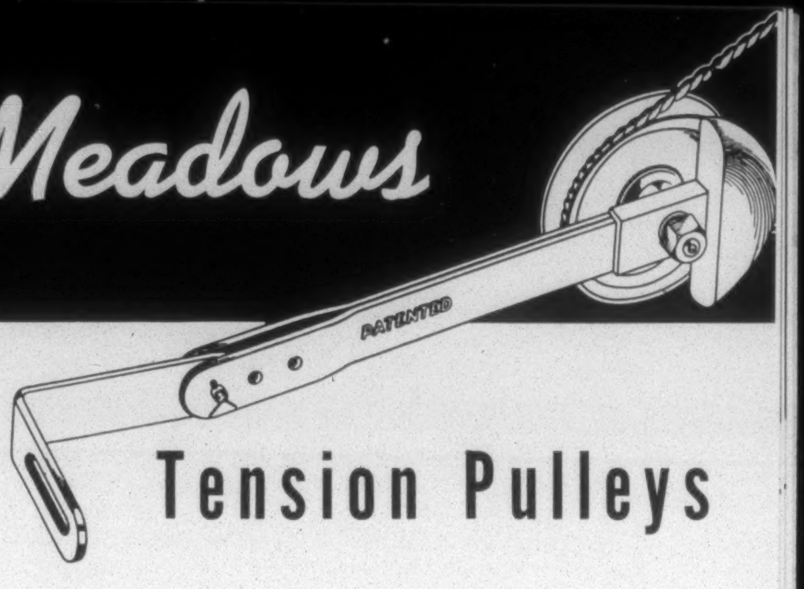
Ward Notes Biggest 11-Month Volume In Its History

Chicago.—Montgomery Ward & Co. reports the largest single month's sales in its history, and the largest 11 months' volume.

December sales were $70,850,185, against $66,025,061 in December, 1939, a gain of 7.31 per cent.

The 11 months' volume totaled $512,514,216, against $471,840,169 in the 1939 period, a gain of 8.62 per cent.

M-R-C *and Meadows*



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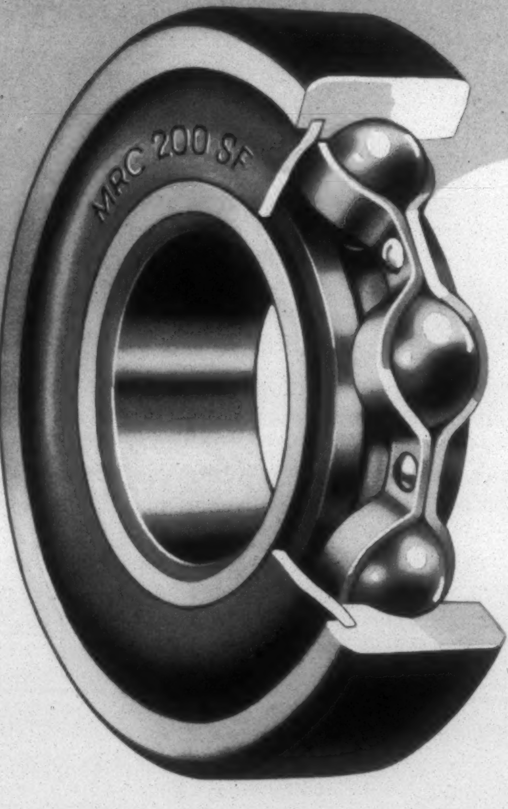
MEADOWS TENSION PULLEYS *with* M-R-C BALL BEARINGS



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Cotton Mill Production Formulae

By John T. Kersey

Written largely for use by the beginner, or mill worker interested in advancement, the following production information may prove of interest to any person in the mill. Some of Mr. Kersey's methods and computations are unorthodox, and may invoke some lively discussion.

Cubic Inches of Full Bobbin

The cubic inches of cotton contained on a full bobbin governs or determines the ounces or pounds of cotton on the bobbin and the sets or doffs per day of the machine. To determine the amount of roving or thread a bobbin will hold, the length of the traverse, diameter empty bobbin, diameter full bobbin, and the taper at both ends has to be taken into consideration. The diagram or sketch, Figure 4-A, is intended to represent a full 12×6 slubber bobbin. The empty bobbin is 2-inch diameter. The length of the traverse 12 inches and the diameter of the full bobbin 6 inches.

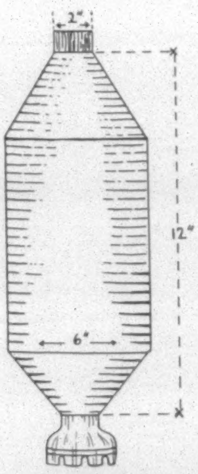

Fig. 4-A

The cubic inches is,

6×6×.7854×12= 339.29″
Less for empty bobbin and 3″ taper
2×2×7854×12=37.69″
4×4×7854×3=37.69

The cubic inches of cotton=
339.29—(37.69+37.69)=263.91

As approximate 6 cubic inch of cotton per ounce

The cotton on full bobbin is
263.91÷6=44 ounces

To avoid some calculation and simplify the formula, 10 per cent can be allowed for the taper and 12 for the empty bobbin, or 11 per cent each.

For example,

6×6×.7854×12=339.2928
Less 10 per cent for taper and 12 per cent for bobbin= 22 per cent= (100—22(×339.2928=441
6

As it is necessary to know the capacity of bobbins when figuring the minutes required to fill the bobbins and doffs or sets per day, these formulas will be found very helpful in finding the amount of cotton the different size bobbins will hold.

Spinning Bobbin Capacity

Approximate Weight of Yarn on Full Bobbin

Diameter Ring	Length of Traverse	Ounces on Bobbin	Pounds on Bobbins
2½″	7″	3.875	.242
2¼″	7″	3.138	.1961
2 ″	6″	2.12	.1325
1¾″	6″	1.627	.1017
1⅝″	6″	1.294	.0809
1½″	5″	.997	.0623

$$\frac{\text{Total pounds per spindle}}{\text{pounds on bobbin}}$$

shows doffs per day per frame

When speaking of production in a cotton mill, we have reference to what the machines will produce per hour, day, week or longer periods of time. The production being reckoned in yards, cuts, hanks, ounces and pounds, depending on the information desired and the kind of machine being used.

When calculating the production of machines having two or more deliveries, the production is first determined for one delivery, which is multiplied by the total deliveries to find the production for the entire machine.

The theoretical production is what the machine would produce in its allotted time if it run continuously and did not have to stop for any cause.

The actual production is what it does produce, which is usually registered in yards or hanks by a clock driven by the front delivery roll.

The actual production, divided by the theoretical production shows the percentage of efficiency. For example, if the theoretical production is 100 pounds per day of 8 hours and the machine actually produced 90 pounds, the percentage of efficiency is 90÷100=90%.

The possible production is what the machine will produce whe conditions are as favorable as possible to make them or with all avoidable loss overcome, such as inferior cotton, or cotton not suitable for the range of the counts or not mixed and blended properly, and not processed thoroughly anywhere in the mill especially at the pickers and cards and drawing frames.

Also the time lost due to carelessness or inefficiency on the part of the operatives in piecing up the broken ends, and other duties they are supposed to perform.

The actual production is seldom what it could be, as a good many minor irregularities are not given the attention they should have throughout the mill.

The unavoidable loss, such as stoppage for doffing, cleaning and overhauling, cannot be overcome, but could be reduced considerably with good management, but seldom is in a large per cent of the mills.

Calculating the production of a machine and then being satisfied with estimating the results is not good practice, especially if the estimate is not backed up with long experience, or efficient management as it is guess work more or less due partly to different opinion among men with varied experience.

There is no doubt, and it has been learned at great cost to the mills, that the opening and picker departments are the ones to lay the foundation for maximum quality and quantity throughout the mill, and the majority of them have brought this part of the mill up to maximum capacity by providing themselves with the best machines obtainable and seeing that they have the care and attention needed to produce the right kind of work, to assure success at the other processes throughout the mill.

A mistake with some mills is that they do not have sufficient cleaning and picker machines to allow them time to keep them clean and in good operating condition, and keep enough laps for the cards, which necessitates carelessness and neglect, hence poor cleaning and evening which effects the running of the work and the quality and production of the remaining processes from cards to the looms.

One great drawback is operating with card drafts much less than 100, which requires laps with light yardage, and the pickers having to run continuously with no time for cleaning and repairs, and in some cases the machines have to be speeded too high which breeds carelessness and neglect on the part of the machine tenders.

For the benefit of the student it is of importance to state that short card drafts are not of any benefit to the quality of the carding as, for example, a 50-yard lap made for 55-grain sliver with a card draft of 100 weighs 39.28 pounds, and a lap 50 yards in length made for the same weight sliver and a card draft of 85 weighs 33.91 pounds.

$$\frac{55\times100\times50}{7000}=39.28 \qquad \frac{55\times85\times50}{7000}=33.91$$

The difference in favor of the 100 card draft is $39.28-33.91=5.89$ pounds.

Assuming that the picker produces 60 laps per day of 8 hours the difference in pounds per day per machine is $5.89\times60=353.4$.

This gain in poundage does not effect the quality of the card sliver in the least as a card licker-in will not have to operate on any more cotton fibres while combing a 12 ounce per yard lap producing 52 grain sliver with a 100 card draft than it would carding a 10¼ ounce lap with a card draft of 85 producing the same weight sliver.

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Mill News

Baltimore, Md.—William E. Hooper & Co. are building an addition to their cotton duck mill.

Laurel, Miss.—Due to discovery of a crack in the flywheel, the Laurel Mills, Inc., were shut down recently until this defect could be repaired.

Sanford, N. C.—At the Wyatt Knitting Mills, a newly organized mill here, some additional hosiery machines and auxiliary equipment have been installed. This machinery and equipment represents an investment of $100,000.

Augusta, Ga.—The Sibley Enterprise Corp. has been dissolved, and has become a part of the corporate structure of the Graniteville Co., of Graniteville, S. C., of which Sam Swint is president. This gives the Graniteville Co. 175,000 spindles under the one management.

Athens, Ga.—The general contract has been awarded to John K. Davis & Son, of this city, contracting concern, by the Athens Cotton Mills, for the construction of a one-story addition, to be used for warehouse purposes. It is reported that the addition and equipment will represent a cost of more than $125,000.

Greensboro, N. C.—A seven-story addition will be made to the storage warehouse of the Proximity Print Works on Fairview Street, which, when completed, will add 56,000 square feet of floor space for the storage of finished goods, Herman Cone, president of the company, states. An office addition of 30 feet to the rear of the present office of the Proximity Mfg. Co., two stories and basement, is being constructed.

Salisbury, N. C.—Cartex Mills, Inc., excepting three small tracts, have been sold to Ben R. Rudisill, Thomas W. Borland, Dorothy Rudisill and Margaret Borland, according to a deed filed at the office of W. D. Kizziah, register of deeds.

No sum was given, but the buildings, tenements, equipment and land was deeded to the two men and their wives in nine tracts. Borland and Rudisill are president and secretary, respectively, of Cartex Mills.

Cartersville, Ga.—B. J. Bandy, of Dalton, Ga., has completed plans for erecting in Cartersville a chenille plant, which he plans to expand later into one of the largest of its kind in the world, according to President James L. Knight, of the Cartersville Chamber of Commerce.

A lot extending 500 feet on Erwin Street and 300 feet on Cook Street, has been selected as the site for the plant. It will start off with places for 450 operatives, and provide employment for some 600 men and women.

Fort Mill, S. C.—Work was begun recently on 50 new houses for operatives of Mill No. 1 of the Springs Mills. The houses are being erected in the rear of the mill on new streets recently laid out. The houses will be four and five-room cottages of attractive design and will be similar to those put up by the mill along the Charlotte highway just north of town a year or two ago, and will be connected with the city water and sewerage systems.

Work on the houses will be rushed to completion as fast as possible, as they are urgently needed for operatives of the machinery installed in the big addition to the mill.

Grahamton, Ky.—In confiscating the property of the McCord Co., which operates a cotton yarn mill here, the Government set its purchasing price at $60,000. As a result of this, the company for the time being will have its yarns manufactured as a jobbing business, until it decides on what to do relative to another plant.

This textile plant's property was needed by the Government for the enlargement of the Fort Knox military camp. It is understood that the Government was especially interested in the large water supply available, as the mill formerly operated its plant on water power.

The mill operated 21 cards and 1,280 spindles, employing 60 operatives.

Burlington, N. C.—A new hosiery manufacturing concern, the J. Z. Erwin Hosiery Mills, Inc., will begin operation in Graham around the first of the year, it was announced by Mr. Erwin, who will be in active charge of the business.

The new firm for the knitting of full fashioned hosiery will occupy quarters formerly used by Thompson Hosiery Mills, now of this city.

The firm expects to employ approximately 32 persons at the beginning of operations with expansion as business warrants it.

Mr. Erwin is a resident of Burlington and has served as manager of the Graham Full Fashion Hosiery Mills for several years. He was formerly connected with the Rufus D. Wilson Knitting Mills of this city.

Gastonia, N. C.—Voting stockholders of Textiles, Inc., large Gastonia textile manufacturing organization, have been called to meet January 21st to consider an amendment to the charter to provide for new issues of stock looking to the reorganization of the corporation and the dissolution of the receivership of the corporation now pending.

The proposed reorganization plan calls for the issuance of new stock, 6 per cent cumulative preferred stock to holders of "A" preferred, and an issue of 4 per cent cumulative stock to holders of "B" preferred. The common stockholders will also share in the reorganization.

There are 14 mills in Textiles, Inc. The mills are: Myrtle, Arkray, Arlington, Mutual, Gray, Seminole, Osceola, Victory, Winget, Myers, Ridge, Priscilla, Cora No. 1 and Cora No. 2.

The mills have a total of 200,000 spindles.

Announcement that the corporation is preparing to come out of receivership will be good news to the textile industry in this section.

For several years, after the textile slump during the depression, the corporation has been operating in receivership under the Federal courts, with A. G. Myers as president.

Concord, N. C.—An over assessment of income and excess profits taxes and interest in the amount of $40,741, in favor of the Locke Cotton Mills Co., Inc., Concord, N. C., John W. Clark, receiver, for 1934 was made known by the Commissioner of Internal Revenue, Washington, D. C.

The amount of $31,992 of the over assessment results from the allowance of an additional deduction for taxes. After investigation and consideration in the bureau it is determined that such deduction was understated in a prior audit. The balance of the over assessment represents interest assessed on a previously asserted deficiency. No part of the over assessment is subject to refund.

McComb, Miss.—Samuel C. Lamport, of New York, has been here conducting negotiations for resumption of the textile plants which have been in the doldrums for several years, it is learned.

As he explained to newspapermen, Mr. Lamport and X. A. Kramer, mayor of McComb, are planning to get the textile plants to operating with the co-operation of labor and capital. Briefly, he explained the plan as entailing the help of workers in using 10 per cent of their wages for purchase of stock in the corporation.

"The workers are in favor of doing this almost unanimously," he said.

Details are now being perfected, it was pointed out, and the mills should be operating again shortly. The mills owned by various companies, would be outfitted with new machinery and would be repaired considerably under the plan.

Shelby, N. C.—Perhaps the largest of business changes in Cleveland County at the turn of the year was the purchase of the Buffalo Mill from I. O. Blumenthal, of Charlotte, by R. J. Woods, former lessee.

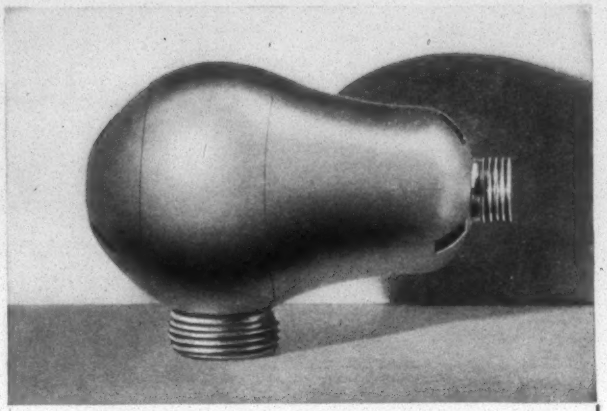
Purchase of the mill, 122 acres of land, a store building and 27 dwellings at a cost of $25,000 was announced by the new owner, who has been operating the mill on lease.

The mill is located five miles northeast of Shelby and was established in 1892. Mr. Blumenthal purchased it in 1932 and Mr. Woods, who has spent all but three years since 1912 in Cleveland County, became lessee-operator the latter part of January, 1938.

The mill, which now has 72 employees and a weekly payroll of $900 to $950, makes coarse cotton yarns. It has 3,100 spindles.

Mr. Woods said there would be no change in the operating personnel or policies—that only the ownership was changing hands.

Dalton, Ga.—New full fashioned hosiery machines have been installed in the local plant of the Real Silk Hosiery Mills. This work was started in May and is expected to be completed soon, as several months were necessary for the installation work.



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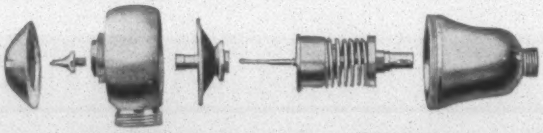
Consider simplicity. Consider day by day—and long range efficiency in the use of compressed air. Consider atomizers that demand no coddling, no fussing over, no adjusting—atomizers so reliable, they are just taken for granted.



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Self-cleaning
Non-adjustable

Parks-Cramer Company
Fitchburg, Mass. Boston, Mass. Charlotte, N. C.

Personal News

T. A. Hightower has retired from the position of manager of the Kendall Co., Edgefield, S. C.

W. M. Allison has been promoted from overseer to assistant superintendent of the Startex Mills, Tucapau, S. C.

Ralph Wall, N. C. State College Textile School graduate, has accepted a position with the du Pont Rayon Corp., Richmond, Va.

Thomas I. Dashiell, superintendent of Spartan Mills, Spartanburg, S. C., has been named assistant treasurer of the company.

Bennett Rose, formerly assistant superintendent of Dunean Mills, Greenville, S. C., is now assistant general manager of Victor-Monaghan Co., same place.

Jim Gossett, formerly overseer of spinning at the Martinsville Cotton Mills, Martinsville, Va., has been promoted to the position of superintendent.

J. S. Turner, formerly superintendent of the Osprey Mill of the Bibb Mfg. Co., Porterdale, Ga., has been transferred to the superintendency of the Columbus, Ga., plant of the company.

Lewis M. Heflin has succeeded W. O. White as assistant secretary of the Cone Export & Commission Co., with headquarters in New York City.

F. E. Darby, formerly with the Gayle plant of Springs Cotton Mills, Chester, S. C., is now overseer of weaving at the Monroe Cotton Mills, Monroe, Ga.

R. Z. Cates, president of Arkwright Mills, Spartanburg, S. C., is owner of Maplerock Jake, a pointer bird dog that won first place in the open all-age stake for the South Carolina Field Trial Association meet at Sumter, S. C., recently.

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Raymond E. Henderson has resigned as superintendent of the No. 1 plant of the Bibb Mfg. Co., Macon, Ga., to become superintendent of the Graniteville Co., Graniteville, S. C.

John Caughman, formerly assistant superintendent of the Startex Mills, Tucapau, S. C., has been appointed general superintendent of Spartan Mills, Spartanburg, S. C.

Wm. H. Tedford, assistant manager of the Mollohon plant of The Kendall Co., Newberry, S. C., has been promoted to the position of manager of the Kendall Mills at Edgefield, S. C., succeeding T. A. Hightower, retired.

Ben Pearson, formerly superintendent of the Martinsville (Va.) Cotton Mill Co., one of the Gossett Mills, has been transferred to the position of superintendent of Mills Nos. 1 and 2, Chadwick-Hoskins Co., Charlotte, N. C.

Russell B. Newton, formerly superintendent of the Columbus, Ga., plant of the Bibb Mfg. Co., has resigned that position to become affiliated with the Riverside & Dan River Cotton Mills, Danville, Va.

W. L. Nicholson, Jr., president of the Globe Mills Co., Mount Holly, N. C., was married on December 20th to Miss Francesca Boswell, of New York City. They will live in Charlotte, N. C.

W. O. White, after 30 years of unbroken service with the Cone Export & Commission Co. at Greensboro, N. C., retired from the post of assistant secretary on December 31st.

J. Ralph Clark, formerly with the Standard-Coosa-Thatcher Co., of Chattanooga, Tenn., is now manager of the textile plant in the Iowa State Penitentiary, Fort Madison, Iowa.

Frank R. Iler, Clemson College graduate, and son of H. H. Iler, of the Union Bleachery, Greenville, S. C., has joined the engineering staff of the Blue Bell Globe Mfg. Co. and is now located in Greensboro, N. C.

P. E. Findley, Jr., has been transferred from the assistant superintendency of the Columbus, Ga., plant of Bibb Mfg. Co., to superintendent of the Osprey plant of the company at Porterdale, Ga., and general superintendent of all of Bibb's Porterdale mills.

P. E. Smith recently resigned his position with Marshall Field & Co., as superintendent of their Finishing and Bleaching plants at Spray, to accept a position with the Riverside & Dan River Cotton Mills as manager of their bleaching and finishing.

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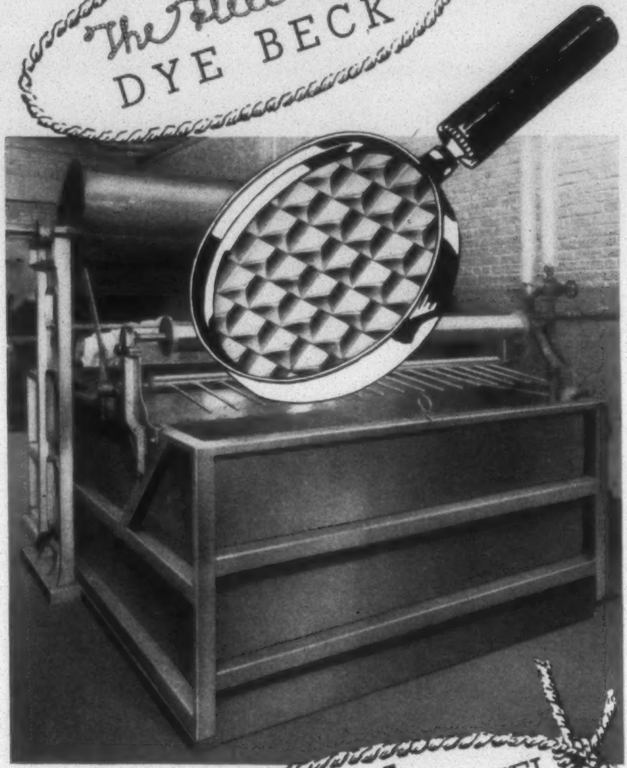
DYE BECK



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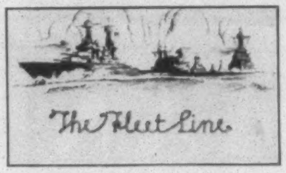

OF FINISHING EQUIPMENT

Continuous Cloth Washer • Stainless Fulling Mill • Dolly Washer • Metal Piece Dye Kettles • Rope Soaper • Silk Dye Beck • Bleach Tub • Cloth Carbonizing Range • All Metal Pusher Mill • Soaping Machine • Cloth Tenter Dryer • Soap Distributing System • Dry Fulling Mill • Rolls • Reels, etc.

This reel prevents the fabric from slipping but does not cut or damage it, as have some kinds of reels designed for more positive grip. It also eliminates the need of lapping or coverings, thus promoting quick color changes and materially increasing production.

Further details on request.

RIGGS & LOMBARD, INC.
Foot of Suffolk St., Lowell, Mass.

AGENTS: Paul A. Merriam, 11 Beerwick Lane, Edgewood, R. I.; Ernest F. Culbreath, 602 Commercial Bank Bldg., Charlotte, N. C.; Harold C. Osler, 6312 Sherwood Road, Philadelphia, Pa.

Coley Phillips has been promoted to the position of superintendent of the Revolution Cotton Mills, Greensboro, N. C.

Frank Skidmore, of Joshua L. Baily & Co., New York City, was recently honored with an impressive testimonial luncheon in honor of his 50th anniversary with the company.

T. Fred Bell has assumed his duties as manager of the Cutter Mfg. Co., Rock Hill, S. C. He had formerly, until some months ago, been treasurer-manager of the Victoria Cotton Mills there for about 20 years.

W. J. Calhoun, one of the oldest employees of the West Point Mfg. Co., Langdale, Ala., has been placed on the inactive list. He was an overseer, and wlil be retained in an advisory capacity.

Robert C. Poovey, superintendent of the Burlington Mills plant at Newton, N. C., was married recently to Miss Edna Davis of Bristol, Va. Mr. Poovey is a graduate of N. C. State College Textile School.

J. Frank Wilson, who recently moved from Fieldale, Va., to Spray, N. C., to become general manager of the Southern mills of Marshall Field & Co., has been elected a member of the Leaksville-Spray Rotary Club.

M. K. Bruce, supervisor of the Plant No. 2 spinning area of E. I. du Pont de Nemours & Co., at Old Hickory, Tenn., has been ordered to active duty in the U. S. Army for one year. He is a lieutenant colonel in the reserve corps.

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FOR EVERY LOAD SPEED AND DUTY
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BEARINGS CORPN., STAMFORD, CONN., U.S.A.
PRECISION

DENMAN
LOOM PARTS
PICKERS
LUG STRAPS
HOLDUPS, ETC.
Proven in Practice
Right in Principle & Price
The Terrell Machine Co., Inc.
CHARLOTTE, N. C.

W. P. Rhodes, formerly with the Carolina Process Co., Mount Holly, N. C., has resigned to accept a position with the Rhodes-Rhyne Mfg. Co., Lincolnton, N. C., manufacturers of bedspreads and wide sheetings.

L. F. Kelly, superintendent of the Poinsett Mill of the Brandon Corp., Greenville, S. C., has been elected honorary superintendent of the Sunday School of the Poinsett Baptist Church for life, in honor of his 16 years' service as superintendent of the Sunday School.

Claude B. Williams, formerly with Marshall Field & Co., of Spray, N. C., and more recently with Borden Mills, Kingsport, Tenn., has accepted a position with the engineering department of Hercules Powder Co., Radford Ordnance Works, Radford, Va.

Goller Now With Clinton Co.

Greenville, S. C.—Harold P. Goller, of Greenville, has been appointed Greenville territory representative of the Clinton Co., of Clinton, Iowa, with offices in the Woodside Building.

Mr. Goller succeeds the late Dana H. Alexander, who for years represented the Clinton firm in this area.

Resolutions On Death of Inventor of Northrop Loom

The Draper Corp., of Hopedale, Mass., recently passed resolutions of regret on the death at Santa Ana, Cal., of James Henry Northrop, who for more than 50 years had been associated with this organization and its predecessors. The resolutions refer to Mr. Northrop as one of the outstanding American inventors, especially in the field of textile machinery, with particular reference to his invention of the automatic loom which bears his name, and the use of which has spread throughout the world.

Mr. Northrop was born in Keighley, Yorkshire, England, May 8, 1856. With a trade and some experience as a mechanic, he came to America at the age of 25 and worked for a time in Boston and Woonsocket. Coming to Hopedale, Mass., to work in one of the shops of George Draper & Sons, Mr. Northrop showed ability as an inventor by developing the Northrop Spooler Guide.

The biography given by the Draper Corp., tells of the effort to develop an automatic loom in its early stages with the Rhoads shuttle-changing device. Mr. Northrop set to work by himself on the same problem, and ultimately both the Rhoads and the Northrop shuttle-changers were patented. The Northrop device was given a mill trial in October, 1889.

Meanwhile, he invented a self-threading shuttle and shuttle spring jaws to hold a bobbin by means of rings on the butt. This paved the way to his filling-changing battery of 1891—the basic feature of the Northrop loom.

"With development of a workable warp stop motion by other members of the Draper organization, and marketing of the first Northrop looms in 1894, the stage was set for the revolution in weaving that has saved the textile manufacturers and the public millions of dollars and led to better wages and working conditions in the industry."

George P. Stone Retires After 45 Years

Greensboro, N. C.—George P. Stone, for 39 years superintendent of Revolution Cotton Mills and 45 years an employee of the Proximity Manufacturing Company, retired from the superintendency December 31, it was announced by Herman Cone, president of the company. He will be succeeded by Coly F. Phillips, assistant superintendent of the mill for the past 11 years.

In announcing Mr. Stone's retirement to private life after almost half a century with the company, Mr. Cone said the former superintendent is "one of the most loyal and efficient men I have ever known. He knew his work from the bottom to the top, loved and was loved by his fellow workers. We will miss him in the organization and he will be a hard man to replace."

He was taught to weave and fix looms by George Robertson of the Riverside and Dan River Cotton Mills, and on November 15, 1895, entered the Cone organization when the late Caesar Cone sent him to the Asheville Cotton Mills at Asheville. The mills had been purchased a short time before from C. E. Graham.

After a year in Asheville he was brought to Proximity Mills here and went to the Revolution Mill as weave room overseer. About a year later was promoted to the position of mill superintendent, the post he relinquished December 31st. The Sternberger interest in the mill was purchased by Proximity Manufacturing Company in 1926.

OBITUARY

FRED R. DAVIS

Fred R. Davis, a founder of the Audit Bureau of Circulations and advertising space buyer for the General Electric Co. at Schenectady for 35 years, died December 26th at his home in Schenectady after an illness of two years. He was 64 years old.

A man of scientific training himself, Mr. Davis was a pioneer advocate of accurate measurement in advertising and helped found the Audit Bureau of Circulations in 1914. He served as a director from that date until his death and since 1927 had also been first vice-president of the organization.

ROBERT C. BOGER

Robert C. Boger, president and general manager of the Boger & Crawford Co., large textile manufacturers, died at his home in Philadelphia from a heart attack January 10th. He was about 60 years of age.

Mr. Boger's company has a large plant at Lincolnton and a large mercerizing plant in Philadelphia.

JEWELL M. HOLLIS

LaGrange, Ga.—Jewell Moses Hollis, 54, died at the City-County Hospital here recently.

A native of Randolph County, Ala., Mr. Hollis had lived in LaGrange for the past 20 years. He was overseer at the Unity Spinning Plant of Callaway Mills.

J. WALTER WILLIAMSON

Wilmington, N. C.—J. Walter Williamson, 66, former secretary-treasurer of the Bellwill Cotton Mills (no longer in existence), was burned fatally recently near Elizabethton, N. C., when his car went over a steep embankment, overturned, and burned. Mr. Williamson was trapped in the car.

GEORGE W. TIPPETT

Spartanburg, S. C.—George H. Tippett, 76, overseer of weaving operations at the Arkwright Mill for the past 20 years, died recently at his home.

Mr. Tippett had made his home in Spartanburg for more than 20 years, and was an official of the Pelzer Mills before moving to this city.

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Synthetic Detergents—Both Cation and Anion Active Finishes
Wetting Agents and Rewetting Agents
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New Line of Petroleum Sulphonate Finishing Oils
Soaps, Mercerizing Assistants, Sulphonated Oils and Tallows, Fatty Acids and Glycerine
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Greensboro Office and Plant
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Greenville, S. C., Office, R. E. Buck, Mgr.
312 Woodside Bldg. Phone 4400

TEXTILE BULLETIN

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Ellis Royal	Associate Editor

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Advice to Combed Yarn Spinners

The address of Maj. Stuart W. Cramer, Jr., president of the Cramerton Mills, before the annual meeting of Southern Combed Yarn Spinners Association, which he has served as president during the past year, was very forceful and attracted unusual attention.

Major Cramer took as his text the statement:

> "We are going to put the defense of our country ahead of private business."

From the address we quote the following extracts:

> "I can think of no quicker road to disaster than to make national defense the football of politics. We might just as well march in a body into one of Mr. Hitler's concentration camps as to be belabored by a group of inexperienced, hostile or vindictive politicians. There can be no effective co-operation without mutual confidence."

* * *

> "I believe that our present productive facilities, utilized to the fullest extent, can take care of all probable government requirements, plus the legitimate requirements of our commercial customers. If this estimate is correct, it follows that any considerable plant expansion in our group would be unnecessary and a menace to the future welfare of the industry. All efforts toward increasing production should be in the direction of getting more out of our existing machinery by modernization, greater efficiency, better balancing, and by running more hours (even at time and a half for overtime, where the demand justifies the extra production).

> "Let us explain to our help the urgent nature of the situation, and ask for their co-operation in turning out more and better work. Where that involves overtime, the extra pay should compensate for the greater drain on their strength and leisure. We have an adequate supply of skilled labor which should be fully absorbed before adding too many hours to shifts already working. I see no reason in our case why our labor should lose any social gains; on the other hand, I can see no justification for labor to use the dire need of our country as a lever to secure still further gains. As to wages, very considerable advances have been made during the past few years. Perhaps here and there inequalities on the lower side exist which could be adjusted amicably and without interfering with production. It goes without saying that if the cost of living rises, or if exorbitant profits should be left to the mills (which seems unlikely under the existing and proposed tax legislation) wages should be adjusted accordingly."

* * *

> "A fair profit is an essential part of the defense program. Without the taxes from substantial profits the government will not have the money to pay for these enormous defense purchases. The only alternative in some form of Communism or National Socialism, which are the very things we are struggling to escape. I don't think procurement officials need worry too much about the general level of prices paid, because the government can regulate profits by excess profits and similar forms of taxation. We ourselves are the ones who have the most to fear from a too rapid upward spiralling of the price structure; I shan't go into that because too many of us here today remember that painful experiences of the last postwar period, and are fully aware of the dangers that lie in that sort of inflation."

A Two-Way Decision

In a decision, rendered on January 6th, the United States Supreme Court held that when an agreement is reached with a group of employees, or persons who have been designated as the bargaining agency, that agreement must be put in writing.

The Court admitted that the law "does not say so in so many words," or in other words, that the law does not contain any provision requiring the signing of a contract, but being the Court that it is, proceeded to make the law to read as they wished it to read.

The portion of the decision which was of most interest to us was the following:

> It is true that the act, while requiring the employer to bargain collectively, does not compel him to enter into an agreement. But it does not follow that, having reached an agreement, he can refuse to sign it.
>
> The freedom of the employer to refuse to make an agreement relates to its terms in matters of substance and not, once it is reached, to its expression in a signed contract, the absence of which, as experience has shown, tends to frustrate the end sought by the requirement for collective bargaining.

In this statement, the Court went on record as holding that employers are not compelled to reach or enter into agreement with employees or their authorized representatives.

They say that the employer must bargain collectively, but that he is not required to reach an agreement with those with whom he bargains. This seems to mean that employers are required to meet with authorized representatives of their employees and discuss requests or demands, but are not required to reach an agreement with them.

The Court does not state how many meetings or conferences must be held in order for them to constitute "bargaining" and until there is some ruling upon that point, union organizers will claim that refusal to continue the conferences indefinitely, will constitute refusal to bargain.

The important point, however, is that the United States Supreme Court has now definitely stated that employers, while they must bargain collectively, are not required to complete the bargain or to reach an agreement with their employees.

We would not be surprised, at some later date, to see the Supreme Court completely reverse its position and say that, although the law does not provide that an agreement must be reached, it must be done, but under the present statement it is not now required that collective bargaining must be concluded with an agreement.

Which Reminded Us

In a Southern newspaper we noted the following editorial comment:

> It must have been a dramatic moment when France's old stalwart, Marshal Petain, faced the treacherous Laval and the Nazi envoy, Otto Abetz, in the conference at Vichy. Abetz had come, with a bristling guard, to get the wherefores of Laval's ousting and perhaps to insist that he be restored to his former place in the French government.

Of what did the above incident remind us and of what does it remind our readers?

Of nothing more nor less than the appearance, at a mill, of representatives of the National Labor Relations board and their arbitrary order to reinstate and to pay back wages to employees who quit of their own accord and who were not justly entitled to either reinstatement or to receive pay for the time they had remained away from their work.

In one case, a mill was arbitrarily ordered to pay a large sum in wages to two men who never at any time had been in their employ, and just as the Vichy Government had to yield to the Hitler dictatorship, so was the mill forced to yield to the New Deal dictatorship.

It is the case of "the kettle calling the pot black," when men in industry in the United States speak of lack of freedom in the countries which Hitler has overrun because we are under the heel of a dictatorship which has been just as unfair and unjust and arbitrary as that which exists anywhere in Europe.

The Hitler domination is made possible by armed soldiers while ours exists by reason of courts which make decisions based upon the political affiliations of their members rather than upon law.

There is very little difference between an in- industry under our centralized government in the United States and the French people under Hitler.

Defense Against Flu

Not for the purpose of trying to sell a product but because the "flu," which now appears to be spreading over the South, may send so many employees out of mills as to seriously affect production, especially upon defense orders, we call attention to "Pinesol," manufactured by Jos. C. Shepard, Wilmington, N. C.

"Pinesol," which is a distillate of pine, may be fed through humidifiers, used in scrubbing water or sprayed around walls and corners. It is harmless and in a diluted form may be used as a nasal spray.

Some mills which used "Pinesol" in former "flu" epidemics advise us that they had much less idle machinery than other mills.

Office Edition Favorably Received

One copy of the first Office Edition of Clark's Directory of Southern Textile Mills was sent to each textile mill in the South other than knitting mills and we have been very much gratified with the response.

Mills write us that the tables showing waste, manufacturing margin, prices per pound, loom production, etc., are saving them much time which was formerly spent in computations.

We have been asked to add certain other tables to the 1941-42 which we will issue late next summer and we shall comply with the requests as we wish to make the Office Edition so useful to mill officials that it will always be found on office desks.

The pocket edition of Clark's Directory of Southern Textile Mills, which has been popular with salesmen for thirty years, will have a revised edition in January, 1941.

Favor Restricting Unions

Dr. Gallup's poll reports the country now more disposed to restrict the unions than to restrict business.—*Greensboro Daily News.*

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DYEING AND FINISHING

The Processing of Wool Shoddy Stock

By
J. T. MacAden

THE Southern Textile Industry has witnessed many changes over the past 40 years.

During the past 20 years, the hosiery industry has grown throughout the Carolinas, Tennessee and Georgia.

The past ten years has witnessed the phenomenal growth of the full-fashioned silk hosiery industry.

There has been one newer phase of textile growth not so widely heralded here in the South and that is the steady growth and influx of new plants to create a woolen industry throughout the South. This gradual spread of the woolen industry to every Southern State has created interest in the wet processing operations necessary in the handling of wool stock.

Many textile operators have asked, "How do you process raw wool and the shoddy wool stocks for colored work and what are the chief types of dyeing machines used?"

In this article, there will be a general answer to these inquiries that will cover the processing of wool shoddy stock briefly.

Wool shoddy stock was selected, as it is used largely with spun rayon, cotton and natural or virgin wool stock in varying amounts in practically every type of woolen goods manufacture now being carried out in the Southern plants.

The shoddy stock is received by a mill in bales, usually classified as "knits" and "rags." These names show the origin of stock.

All stock requires carbonizing to remove vegetable fibers and one of the difficulties is the removal of the rubber "lastex" materials and acetate rayon fibers. Only the larger woolen plants have carbonizing units. This work is carried out usually by job carbonizing plants in the Eastern wool buying centers.

The baled carbonized shoddy stock may be oiled and garnetted prior to the stripping and dyeing operations instead of opening a bale and entering the stock directly into a dyeing machine.

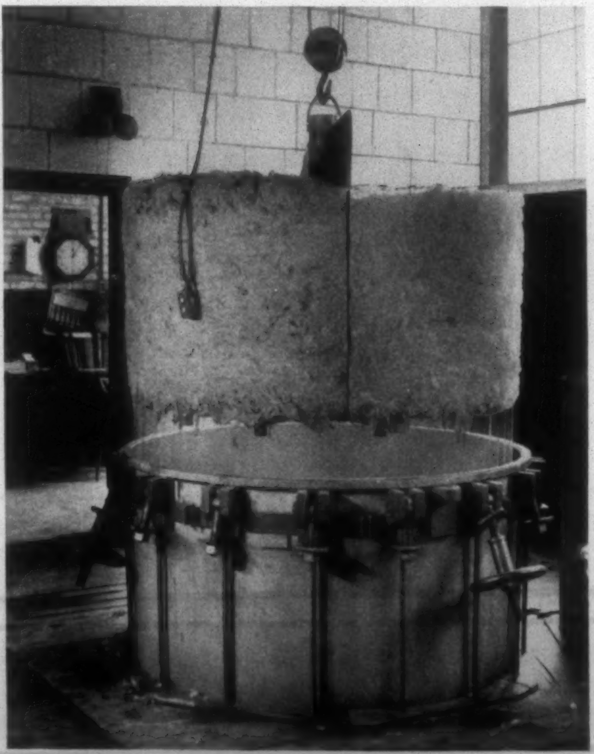
To help increase the dyehouse production, many plants are trying to eliminate the oiling and garnetting of stock prior to stripping and dyeing operations, but they find that this may give an unevenly dyed stock.

The oiling and garnetting of the knits and rag stock before stripping and dyeing is advisable wherever the revolving type or rotary dyeing machines are used, as the rag and knits stock, unless garnetted, will tangle up into large balls which are very difficult to strip uniformly and to dye level and evenly, thus giving unevenly dyed stock, with which it is difficult to make the necessary stock blends for the manufacturing departments.

If a wool dyehouse is equipped with the older type of wool dye vats where the stock is poled or the wool raw stock machines, the carbonized shoddy stock can be stripped and dyed in either of these processing units without excessive tangling.

The dyed stock can then be oiled and garnetted ready for the manufacturing departments, thus saving the labor, time costs and expense of oiling.

Cotton raw stock machines could probably be adapted to the dyeing of wool shoddy stock by building supporting



Courtesy Franklin Process Co.

inner frames to place midway of dye lots. These inner frames to have proper circulation holes and thus prevent over packing of the shoddy stock during the loading of a cotton type raw stock machine.

By making these changes, a cotton raw stock machine's capacity would be reduced 25 to 30% for proper dyeing of the stock.

The stripping and dyeing operations for shoddy stock are carried out along the following routines:

A *Ammonia Sour*—2-5% Ammonia.

Give steady boil for 30-60 minutes, drop bath and give cold running wash.

Strip Bath—Bring up in fresh bath and add: 1½-3% Sulfuric Acid Conc., raise to boil and add slowly 3-6% Zinc Sulfoxylate Formaldehyde (normal type), (stripping agent). Run at boil until stock is properly stripped, drop bath and in fresh bath, add sufficient ammonia to neutralize the residual acid remaining in stripped stock.

Precautions to observe for proper stripping:

1. The use of a glass pH electrode unit is advisable wherever a plant has a competent textile chemist for checking all steps during the stripping operations. If glass pH electrode is not available, then various chemical test papers should be used to determine whether sufficient amount of sulfuric acid has been added to bath after ammonia wash to make the stock correctly acid and to check other chemical operations in plant wet processing.

2. The addition of the stripping agent (Zinc Sulfoxylate Formaldehyde) to a bath that is a neutral or alkaline bath will secure only partial stripping. Precautions also must be observed to prevent too great an addition of sulfuric acid, as excess acid in the bath will cause the stripping agent to decompose too quickly and not give a satisfactory strip as when the bath is kept slightly acid and if necessary an addition of both acid and stripper are preferably made to secure a full strip.

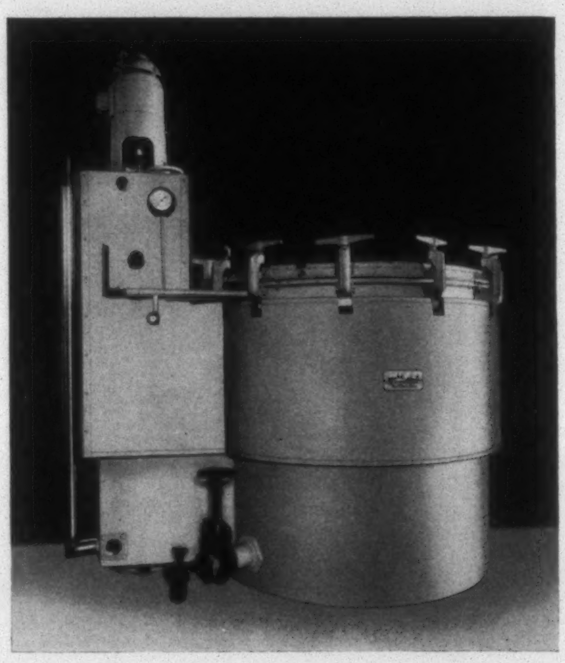
3. The stripping bath must test acid when the stripping is completed, otherwise a dyer may be fooled and think he has obtained a strip on the stock when in reality the wool color will oxidize back in the acid dye bath and cause serious trouble on shades requiring stripping and redyeing a lot.

4. A quick test to determine when a lot is actually stripped or not, is to take a swatch of stock, neutralize it in weak ammonia, then place in a weak acid solution, wash free of acid, then check for stripped shade against lot from machine. If there is no change of shade, a dyer can rest assured the shoddy stock is properly stripped ready for giving ammonia wash and the dyeing operations.

Dyeing the Stock—On light shades by using the better quality acid colors, the addition of a chrome bath is eliminated and helps the dyer to step up production. For medium to heavy shades, it is necessary in a majority of shades to run a chrome bath on selected fast to fulling chrome colors.

Dyeing Procedure—Light Shades—The stripped goods are dyed at a light boil for 30 minutes with acid colors (selected acid and chrome types) and 5-10% Glauber's salt. Then 1½-3% acetic acid—56%—added slowly, bath run at light boil for 30 minutes, sampled for shade, if satisfactory, bath dropped and running wash ready for extraction and drying. For some light colors, the acetic acid is replaced partly with 1% sulphuric acid so as to obtain full exhaust of colors.

For medium to heavy shades the stripped goods are dyed with Glauber's, acetic and sulfuric acid for 45 minutes, steam cut off and 1 to 2½% bichromate of soda is added in a diluted solution slowly to dyebath, run for 30 minutes at light boil and stock sampled for shade.



Courtesy Riggs & Lombard.

Some dyers prefer to sample for shade before adding bichrome on this afterchroming bath, but it saves time to be able to carry through the dyeing operation without this delay.

The dyed stock is washed, ready for finishing.

Names of Normal Zinc Sulfoxylate Formaldehyde makers:

Protolin—Rohm & Haas Co.
Decroline—General Dyestuff Corp.
Sulfoxite S—DuPont Co.
Parolite—Royce Chemical Co.

Rhoplex Resins By Rohm & Haas

Rohm & Haas Co., Philadelphia, Pa., has recently issued a 20-page booklet on Rhoplex Resins for Fabric Finishing. In explaining the difference between Resin and Rosin, the booklet says that rosin is a natural product obtained by distillation of crude pine tar, and is a specific term which applies only to this one material. Resin, it points out, is a general term applied to a large range of non-crystalline materials. More specifically, it refers to synthetic organic film-forming materials, such as the polyacrylates, which are synthesized and polymerized under carefully controlled conditions so as to insure an absolutely uniform product. The acrylic esters are low boiling liquids which are distilled and purified before being polymerized to clear, tough resins.

The booklet lists the general properties of the RHoplex resins, with illustrations to show their applications and advantages to be gained through their use. Quoting: "Among the effects more commonly sought are permanence of finish, better color value, greater luster, increased tensile strength, increased abrasion resistance, non-slippage of yarns, together with freedom from odor, and discoloration upon ageing."

Fastness To Atmospheric Gases of Dyes On Cellulose Acetate Rayon—A. A. T. C. C. Method

Test Specimens: Four specimens shall be cut from the fabric to be tested. One specimen shall be washed in a soap solution (containing 5 g. of 88% neutral soda soap per liter of water of approximately zero hardness) for 15 minutes at 100° F., rinsed in warm water and allowed to dry in the air. One specimen shall be immersed in cold Stoddard solvent for 15 minutes, squeezed, and allowed to dry in the air. One specimen shall be immersed in cold perchlorethylene for 15 minutes, squeezed, and allowed to dry in air. The fourth specimen shall be retained in its original condition.

Apparatus: The apparatus shall consist of an enclosed metal chamber, connected by a metal pipe to a lighted gas-burner in such a manner that the burnt gases from the burner pass directly through the chamber. Either natural or manufactured gas may be employed.*

Procedure: Samples of the four specimens, each measuring at least one inch square, shall be suspended freely in the chamber together with a "control sample" ** of a standard acetate rayon dyeing of known sensitiveness to gas fumes. The gas burner shall be lighted, and the flame adjusted so that the temperature in the chamber does not exceed 140° F. The sample shall remain in the chamber until the "control sample" shows a change of shade corresponding in degree with that of a "standard fading." *** The samples shall then be removed from the chamber and immediately compared with the respective unexposed portions.

Evaluation: A sample which shows no alteration of shade shall be considered to have satisfactory resistance to atmospheric gases. A sample which shows as much alteration of shade as the control sample must be regarded as definitely sensitive to atmospheric gases.

*Any type of apparatus which conforms to these specifications may be used. It is strongly recommended that a motor driven fan be installed in the chamber to keep the fumes well distributed, and that a grid of iron wire be placed over the gas burner, as this will accelerate the production of oxides of nitrogen, which are responsible for the fading of the dyes. A complete description of a typical apparatus which has proven satisfactory will be published soon in the *American Dyestuff Reporter*.

**The "control sample" shall consist of a 1 per cent dyeing of Celanthrene Brilliant Blue FFS (or its equivalent) on acetate rayon satin.

***The "standard of fading" shall consist of a silk fabric dyed with stable dyes to imitate the color of the "control sample" after it has been exposed to average atmospheric conditions for a period of six months. Samples of both the "control sample" and the "standard of fading" are available on request to C. A. Seibert, P. O. Box 386, Wilmington, Del.

New Reference Book On Synthetic Organic Chemicals

An attractive as well as comprehensive reference book, "Synthetic Organic Chemicals," containing data on the properties and uses of 142 industrial organic chemicals, has been published by Carbide & Carbon Chemicals Corp., 30 East 42nd Street, New York City. This 96-page book is a completely revised and enlarged tenth edition. It includes six new chapters and contains information on 66 products not described in any previous editions. Much of the contents of this new book are not obtainable from any other source and many of the chemicals were not previously known to industry.

Each synthetic organic chemical is classified and described in accordance with the characteristic group to which it belongs. The chemicals thus dealt with include practically every major family of organic chemicals—alcohols, glycols, ethers, oxides, alcohol-ethers, esters, ketones, aldehydes, acids, anhydrides, chlorinated compounds, amines, penetrants, "Carbowax" compounds, synthetic resins, activated carbons, and hydrocarbon gases.

Copies of the book may be obtained without cost from Carbide & Carbon Chemicals Corp., 30 E. 42nd St., New York City.

Dye Padders Now Being Pneumatically Loaded

Instrumentation for the pneumatic loading of dye-padders and similar squeeze roll machines, already in use in more than twenty textile mills, is said to be meeting with favor because of advantages offered over earlier loading methods. The pneumatic system is simple in principle and in operating use. Compressed air from the mill supply line is piped to two cylinders, one located at either end of the squeeze roll. On the control panel, located wherever may be most convenient for the operator, an air-switch cuts the air supply on or off; or if desired, reverses the air force, giving the top roll a pneumatic lift. The exact pressure applied by each cylinder is determined by the setting of a Foxboro Airdron Regulator, a high-sensitivity valve specially designed for use on dead-end service. A two-pen gauge makes a continuous record of the day's operations, showing the duration of each run and exactly what pressure was applied at each end of the roll. When independent loading of the two ends is not required, one Airdron regulator will supply uniform equalized pressure at both ends, and a single-pen gauge is satisfactory.

New Electron Microscope Expected To Reveal Secrets of Dyestuffs, Resins, Catalysts

AMERICA'S first commercially built electron microscope, which enables scientists to picture minute objects at 100,000 times natural size, is now being operated in the Stamford Laboratories of the American Cyanamid Co., Stamford, Conn., according to an announcement made January 15th by the company. Although several experimental microscopes of the kind have been built and used, the first American commercial instrument is being used by American Cyanamid's scientists to develop new chemicals for industry and medicine. The instrument was developed and built by the RCA Research Laboratories in Camden, N. J.

Results already obtained by American Cyanamid research workers in the study of pigments used in the paper industry (precipitated chalk and magnesium oxide) show that infinitely fine particles of these materials possess the same crystalline structure in small as in large pieces. This disproves the theory widely held heretofore that such pigments lose their crystalline character when precipitated as infinitesimally fine particles.

Photographs made directly in the electron microscope show the object magnified 20 to 30 thousand times. However, details are so clearly pictured in these photographs that they can be readily enlarged to give a total useful magnification of 100,000 times natural size. An average human hair subjected to such huge magnification would appear to have a diameter as great as California's giant trees, and an object an inch long so magnified would appear to be more than one and one-half miles in length! The limit of magnification of the best optical microscopes is about 1,000 times natural size.

Photographs made in preliminary tests of the instrument show what are presumed to be individual giant molecules, the shapes and sizes of colloidal particles, and intimate details of certain types of bacteria, which the weaker power of optical microscopes could not reveal. Individual giant molecules of poly-vinyl chloride resin have been pictured with the aid of the electron microscope. Particles of colloidal carbon appear generally spherical in shape and on a diameter of about four ten-millionths of an inch. Photographs of anthrax baccilli, germs of pneumonia and typhoid bacteria show these to possess strangely intricate structures. These micro-organisms apparently are not the simple bits of jelly-like substance seen by customary light microscopes.

Applications of the new instrument in the American Cyanamid laboratories are expected to uncover new and important facts about the action of catalysts, which mysteriously promote chemical reactions; about the action of chemicals on the bacteria of disease, since it may be possible to see how the drug actually killed the germ; and about the nature of synthetic resins and the processes by which they are formed. Other fields in which the laboratory is actively engaged, and to which the new instrument will be applied, include the flotation of ores and the recovery of metals by cyanidation; the manufacture of special chemicals used in the leather and paper industries; the treatment of textiles; rubber chemicals and their action in prolonging the useful like of rubber goods; synthetic resins, and plastics and enamels into which they enter; insecticides and fungicides, important to agriculture in the control of insects and diseases of plants; fertilizers and plant hormone substances; and a wide variety of chemical products, many of which are made from the company's basic raw material, calcium cyanamide.

The image of the object examined is obtained by placing a fluorescent screen, similar to that used with x-rays and in television receivers, in the path of the electrons. The screen glows in proportion to the density of the electron stream striking it and thus reveals the magnified image. A photographic plate can be substituted for the fluorescent screen to take a picture of the object. Ordinarily the magnification of the contact print from the photographic plate is about 10 to 30 thousand times natural size. However, the details of the object are so clearly delineated that the photograph can easily be enlarged many times to give a final magnification of one to two hundred thousand times.

The smallest distance that has so far been clearly revealed by the electron microscope is about 30 Angstrom units (about one ten-millionth of an inch). This is shorter than the dimensions of the molecules of synthetic resins as deduced from indirect measurements. Thus the size of large molecules may be actually measurable by means of the new instrument.

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New Dyestuffs and Chemicals

DU PONT DYESTUFFS DIVISION presents "Polyform" Blue RF, a formaldehyde-aftertreated direct color. It is recommended as a ground shade on viscose process rayon which is to be subsequently discharged. It is slightly greener in shade than "Polyform" Blue 2RF (P. A. F.) and therefore better suited to the production of navies. On rayon it shows very good fastness to washing at 160° F., light, perspiration and pressing.

"Diagen" Red Violet DR is a stabilized azoic printing color suitable for application to cotton. It produces reddish shades of violet which possess good fastness to washing, power laundering with chlorine and hot pressing.

"Sulfogene" Brilliant Green 4GX Conc. is a sulfur color which produces bright yellowish shades of green. It is similar in all its properties to the older type "Sulfogene" Brilliant Green 4GX except that i tis much more soluble and is therefore better suited to use in circulating liquor type machines. Suitable for application to cotton rawstock, yarns or piece-goods. Recommended for washable fabrics such as denims and ginghams, as well as awnings and upholstery materials.

"Sulfogene" Brilliant Blue RCF is a sulfur color which possesses fastness properties similar to those of "Sulfogene" Brilliant Blue 3GCF. However, it produces redder shades of blue than the older type. It is recommended for both cotton and rayon and is suitable for practically all types of machine dyeing as it levels and penetrates well.

"Pontachrome Fast Red 2RL" is a chrome dyestuff with light resistance that is comparable to that of the best chrome reds. Suitable for shading purposes in the dyeing of upholstery fabrics, men's wear worsteds for suitings and overcoatings and other types of woolen goods requiring good all-round fastness. Very good resistance to acetic acid, crocking dry heat, acid perspiration, steaming cold water and cold water spotting. Resistant to stoving, fulling, hot moist pressing, alkaline perspiration, washing, salt and boiling water and dry cleaning.

DU PONT FINE CHEMICALS DIVISION presents "Methacrol" BE, a stiffening and bodying agent that is compatible with polyvalent metal ions and with cationic surface active agents. Adapted to use in finishing operations where these materials are present in high concentrations. Substantive to wool, silk, cotton, nylon, viscose process rayon and cellulose acetate rayon. It can be applied from a dilute bath by exhaustion.

"Methacrol" NH is a finish for nylon hose which imparts snag-resistance and a delustering finish. It is a stable milk-white fluid dispersion that is compatible with metallic ions, but not with soaps or other soap-like surface active agents. The finish adds body to the stockings to permit satisfactory packaging. It is durable to washing.

"Methacrol" SH is recommended for use either alone or in combination with "Aridex" WR and/or "Aridex" WP (Pat.) on silk hosiery. It has a very strong delustering effect on the fiber, being more active in this respect than "Methacrol" NH. When used with starch (or gelatin) and "Aridex," excellent water repellency and a good body are obtained. By varying the percentages of these materials, almost any desired hand can be produced.

GENERAL DYESTUFF presents "Sulphon Yellow RS Extra," an acid yellow producing fairly bright shades. Dyeings possess fairly good to good fastness to light, good fastness to washing and to perspiration, and good to very good fastness to fresh and sea water. Recommended for dyeing of knitting yarns for sweaters and bathing suits, and also of loose wool for blankets.

"Soromine FW Paste" is a softening and finishing agent suited for use on rayon, rayon mixtures and cotton. It is a white paste of neutral reaction, readily soluble in water. It is not cation-active and can be applied directly from the dyebath, to impart a soft, smooth handle, which is not affected by cold rinsing. Cannot be used in the same bath with basic dyestuff. May be used in place of soap in dye liquors, particularly when only hard water is available.

"Palatine Fast Blue GGNA-CF" is an acid dyestuff which possesses fastness properties approaching closely those of the chrome colors. Very satisfactory level dyeing and fastness properties and easy to apply. Suited for piece goods and on yarns of all kinds, especially knitting, hosiery, and carpet yarns, and further, on loose wool and slubbing which is to be given a light fulling. May be used for producing fast shades on silk.

"Rapidogen Navy Blue FFR" produces particularly fine navies, brighter and redder than those obtainable with such dyes as Rapidogen Blue N. Good stability and dissolves readily without the addition of solvents. Develops more rapidly and couples completely during a short acid ageing.

"Benzoform Blue Green BA Conc." is a direct color recommended for the dyeing of cotton and, particularly, of rayon. When aftertreated with formaldehyde and acetic acid, in the usual manner for Benzoforms, it produces fairly bright, very bluish shades of green of comparatively good fastness to washing, to water and to perspiration. Well suited for materials which require a degree of fastness to wet processing beyond that obtainable with the average direct color.

"Amido Yellow EA-CF" is an acid color possessing very good level dyeing properties as well as very good light fastness. Well suited for dyeing of both piece goods and yarns. In combination with other fast to light and well levelling acid colors such as Alizarine Direct Blue AGG and ARA, Alizarine Supra Blue A, Fast Light Red BA, Supra Light Rubine BLA, and Anthralan Red B, it finds extensive application in the production of mode shades on ladies' dress goods, draperies, upholstery, and hats. Suitable for use on materials that are subsequently rubberized.

"Benzoform Rubine BA" is an acid color suitable for application on the various forms of wool. Recommended for dyeing knitting and hosiery yarns, and articles which must possess good fastness to washing and, at the same time, good fastness to light. Dischargeable to a clear white with Rongalite C.

"Supramine Red BBLA" is a direct dyeing color which is recommended for use on cotton, and particularly on rayon. When aftertreated with formaldehyde and acetic acid, it produces bluish shades of red of comparatively good fastness to washing, to water and to perspiration. Adapted for dyeing of materials which require fastness to wet processing beyond that obtainable with ordinary direct colors. Suitable for discharge work and machine dyeing. Leaves acetate rayon effect threads practically white, stains acetate rayon surfaces slightly and silk effects considerably.

E. F. HOUGHTON offers "Cerfak," a combined wetting-out agent and detergent. Soluble in all practical proportions in water and operates in acid, alkaline or neutral solutions. Highly concentrated; very few operations require more than a .2 per cent solution; some processes require only .05 per cent solution. Agent for getting out or penetrant, scouring, detergent, emulsifying, dispersing; stable. Used on cotton, wool, rayon, silk and miscellaneous fibers.

"Cerfak G" is a wetting-out and detergent agent, soluble in practically all proportions in water. An efficient wetting-out, scouring, dispersing, penetrating and dye bath levelling agent which is used to replace soaps, sulphonated oils, fatty alcohol sulphates, sulphonated amids and esters in operations requiring these properties. Similar to Cerfak, described above, on the same fibers.

"Surfax W. O." is a liquid oil product used as a wetting-out and softening agent. It has no detergent properties. Recommended for wetting-out and dyeing of hosiery; cotton, wool, rayon, and silk yarns; underwear and piece goods; sanforizing; softening. Not affected by soda ash, but caustic soda in any appreciable concentraton destroys its wetting-out action. Faster wetting-out action than most, particularly at temperatures above 120° F.

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Consumption of Cotton Increases in December

Washington.—The Census Bureau has reported that cotton consumed during December totaled 775,472 bales of lint and 104,536 of linters, compared with 744,088 of lint and 108,117 of linters during November last, and 650,123 and 105,329 during December a year ago.

Cotton on hand December 31 was reported held as follows:

In consuming establishments, 1,833,864 bales of lint and 499,555 of linters, compared with 1,682,278 of lint and 453,422 of linters on November 40 last, and 1,861,406 and 404,802 on December 31 a year ago.

In public storage and at compresses, 15,046,513 bales of lint and 76,269 of linters, compared with 14,727,234 of lint and 70,288 of linters on November 30 last, and 14,579,390 and 166,110 on December 31 a year ago.

Imports during December totaled 5,906 bales, compared with 12,026 bales during November last, and 9,667 during December a year ago.

December exports totaled 107,375 bales of lint and 2,181 bales of linters, compared with 144,710 of lint and 1,653 of linters during November last, and 806,720 and 24,992 during December a year ago.

Cotton spindles active during December numbered 22,817,658, compared with 22,685,968 during November last, and 22,780,406 during December a year ago.

Cotton consumed during December included: In cotton-growing states, 665,265 bales, compared with 638,767 during November last, and 553,042 during December a year ago; and in New England states, 89,034 bales, compared with 83,069 and 78,842.

Cotton on hand December 31 included:

In consuming establishments, in cotton-growing states, 1,535,572 bales, compared with 1,449,510 on November 30 last, and 1,594,808 on December 31 a year ago; and in New England states, 254,179 bales, compared with 193,365 and 216,580.

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Francisco Vasconellos, Brazilian fabric manufacturer, arrived recently in New York from Rio de Janeiro, stating he had a blank check for $100,000 to buy spinning machinery needed for the manufacture of a new fabric, a linen substitute called Caroa, which, he said, he had invented.

Mr. Vasconellos came here in the Lloyd-Brasiliero liner Buarque.

Jobs in Textile Dyeing and Finishing in 1939 Below 1937

Washington.—Manufacturers dyeing and finishing textiles, except woolen and worsted, reported a slight decrease in employment and wages for 1939 as compared with 1937, according to preliminary figures compiled from returns of the Census of Manufacturers for 1939 and released by William Lane Austin, director of the Bureau of the Census, Department of Commerce.

The industry designated "dyeing and finishing cotton, rayon, silk, and linen textiles" covers establishments engaged primarily in the bleaching, dyeing, printing, finishing or otherwise converting fabrics of cotton, rayon, silk, and linen or mixtures of these fibers, and the dyeing and finishing of yarn and thread of cotton, rayon, silk and linen. The "cloth sponging and miscellaneous special finishing" industry covers establishments primarily engaged in sponging cloth and in waxing cloth and buckram.

The wage earners primarily engaged in manufacturing in this industry group in 1939 were 63,048, a decrease of 2.7 per cent compared with 64,781 reported for 1937, and their wages, $65,596,190 were less than the 1937 figure, $68,342,636, by 4 per cent.

Employees of the plants reported as engaged in distribution and construction activities in 1939 are not included in this preliminary report but will be included in the final report.

The value of products of these industries for 1939 amounted to $294,849,543.

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World Cotton Output Declined Slightly in 1939-40

New York.—World production of commercial cotton in the 1939-40 season was slightly smaller than in the previous season, due to a moderate decrease in the United States crop, according to a review of the 1939-40 season contained in the thirteenth Cotton Year Book of the New York Cotton Exchange just issued. World consumption of American cotton registered an appreciable increase over consumption in the previous season, but world use of foreign growths showed a substantial decrease, with the result that world consumption of all cottons was very slightly smaller than it was in 1938-39. However, since world consumption of all cottons in 1939-40 was in excess of production, the world carryover at the end of the season was smaller than that at the end of the previous season.

The world produced 27,367,000 bales of the staple in the 1939-40 season as against 27,504,000 bales in the previous season. Production of American cotton aggregated 11,516,000 bales as against 11,665,000, while production of foreign growths totaled 15,851,000 as against 15,839,000. The moderate decrease in the domestic crop was due entirely to a small reduction in acreage, since the average yield per acre was somewhat larger than that recorded in 1938-39. Production by foreign cotton growing countries in the aggregate held practically unchanged, increases in numerous countries being offset by decreases in India and China.

World consumption of all cottons in 1939-40 totaled 28,461,000 bales, compared with 28,507,000 in the previous season. World mills increased their use of American cotton over that in the previous season by 1,627,000 bales, but they decreased their consumption of foreign growths by 1,673,000 bales. With the exception of the Continent, all major divisions of the world industry used more American cotton in 1939-40 than in the previous season, but only domestic mills and mills in "elsewhere" countries increased their use of foreign growths. The world carryover of all cottons at the end of the 1939-40 season was 20,454,000 bales, as against 21,633,000 the previous year.

Delta Urged To Grow Less Extra Long Cotton in 1941

Greenwood, Miss.—A year-end forecast that the demand for Delta cotton will continue throughout the first half of 1941 is made by W. M. Garrard, chairman of the Staple Cotton Co-operative Association.

In a report to the Association's board, Mr. Garrard cautions growers against over-planting next spring of the seed that produces extra long staples, 1¼-inch and longer. There is now a surplus of this fancy cotton, he points out, whereas the supply of high grade or white cotton in the current crop is limited.

Mr. Garrard says in part:

"Mills are running at capacity, and apparently the demand for cotton goods will continue unabated, in which case there will be full consumption of Delta cotton during the early months of 1941 and a high rate of consumption will probably continue through the entire year.

"Our records indicate that only about 60 per cent of the cotton ginned to December 1st was high grade or white cotton, and it becomes apparent that high grade desirable cotton in the current crop is limited.

"As to the medium grades of Delta cotton, we feel there will be some appreciation in value for this cotton as the season progresses. With the extremely limited supply of high grade staples and the broad demand for such cotton, it appears to be only a matter of time until mills must turn to the better class of the medium qualities to fill their requirements later in the season.

"At this time we have only two-thirds as much cotton unsold in the merchandise account as was on hand a year ago. We feel that our merchandise account is in a favorable position and that our unsold stock in this account will be liquidated on a satisfactory basis as it is sold through the remainder of this season. Our Association receipts through December 10th were 187,035 bales. It is our opinion the Association will receive a total of approximately 225,000 bales for the season.

"The stock in all Delta warehouses on December 1st was 626,825 bales, compared with a stock last year of 829,793 bales. Of the total stock on hand September 1, 1940, 252,395 bales were pledged for the Government loan. None of this pledged cotton is desirable staple cotton, and no shipments have been made from this loan stock, due to the fact that the cotton could not be withdrawn at a price that would allow an equity to the grower.

"Therefore, the net stock from the current crop on hand December 1st was only 374,430 bales, and much of this cotton no doubt was being held by merchants to protect deferred shipments. Such a small stock of free cotton suggests the possibility of an extreme shortage in the supply of Delta cotton, in view of capacity consumption on which mills are now operating. In fact, our Association has sold 75 per cent of all deliveries by members, and it is our opinion that even a greater percentage of outside cotton has passed from growers' hands to merchants' stocks.

"Our extra long staples are normally used in fine count yarns, and there has been no increase in the demand for or offtake of the extra fine count yarns. As a result, there is at this time a surplus of fancy staple cotton, and with the facts we have before us we anticipate no great increase in the demand for extra staple cotton. If the growers in the Delta area increase their production of this extra long cotton, there can be but one result and that is a drastic decline in the premium another year.

"On the other hand, apparently there will be an active demand next season for Delta cotton of 1 5/32-inch and 1 3/16-inch lengths, and growers who anticipate changing their seed should consider planting a variety that will produce either or both of these lengths. Certainly it would be most unwise to increase their acreage planted to seed producing extra staples of 1¼-inch and longer. Our growers have been fortunate this year in selling their extra length staples at 20 cents or better for the higher grades, but much of his cotton that was bought by merchants at these fancy prices has not been sold to mills, but remains in stock unsold. Early in the season the trade was optimistic in its anticipation of the demand for extra fancy cotton, and consequently paid much higher premiums for the extra staples than have been paid in the past few years."

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Cotton Goods Markets

New York.—It's anybody's guess as to what is going to happen in the next few weeks in the cotton goods market. In such unusual times, all of the tried and true (approximately) formulae fail to pay off as anticipated and the market prognosticators are just about as accurate as weather forecasters. It will either be hot or cold, fair or rainy, or both or each, maybe. At any rate, most of the mills are more concerned with getting out the orders they now have on hand than in placing orders for far future deliveries that will further complicate their delivery schedules.

Demand for heavy bag sheetings have featured activity in the Worth Street markets recently. As a result of this business, most mills are not only in a strong position as regards unfilled orders for the first quarter, but have accumulated sizable backlogs for second quarter shipment. Even before the last buying movement began, sheetings were in a better position than print cloths from the standpoint of relative poundage prices. Osnaburgs also shared in the activity. Tobacco cloths are active and stronger. Print cloths are less active, but this caused no surprise since prices on these have risen and some deliveries are hard to get. Combed goods have been inquired for in large amounts. The trade at large looks for a continuance of buying, but believes that it will spread to other divisions before returning to print cloths and related items.

Demand for cotton gray goods has veered to sheetings, osnaburgs, specialty industrial fabrics and ducks. Staple print cloths are less active, but this was to be expected in view of the fact that prices are higher and supplies of a number of weaves have become rather scanty. Bag manufacturers are the chief operators and have accumulated large amounts of the heavier sheetings for delivery over the next three to four months. Prices on the active items moved up ⅛c to ¼c a yard.

Most of the activity is in line with the general pattern of buying during a broad scale buying movement. Most of the buying has been confined to print cloths.

The textile industry has not as yet felt the full brunt of emergency buying that will certainly result from the apparently established foreign policy of the government. If the United States is to become the "Arsenal of Democracy," as has been suggested in recent speeches of prominent Governmental officials, the cotton mills of the South may be called upon to produce our own accelerated needs, as well as the needs of Great Britain.

J. P. STEVENS & CO., Inc.
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Cotton Yarn Markets

Philadelphia.—Combed yarn producers have been issued a very sharp warning by Stuart W. Cramer, president of the Combed Yarn Spinners, which is published in this issue. He says that if the industry does not produce under existing pressure, that the Government is apt to force production under their own supervision. This warning was issued only to the very small fringe of mills that might possibly be attempting to put their own interests ahead of the National Defense Program. However, as he points out, the few may force regimentation on the entire group, which is best avoided if possible.

Improvement in buying of cotton yarns is increasing, though a good many customers are not now in particular need of additional yarn. As compared with a few weeks ago, there are more orders and considerably more inquiries. In contrast with a month ago, when many customers resisted the urging of suppliers to cover ahead fully for the January-to-March quarter, most of the orders and inquiries now have to do with second quarter requirements.

Some of the trades using cotton sale yarn remain seasonally quiet, while others are very busy because it is their season and for special reasons, as in the case of tapestry and upholstery mills that have the domestic market almost entirely to themselves, due to war-time interruption of competition from abroad.

In some divisions of the yarn list, the asking prices have been advanced, as in two-ply combed peeler yarns. though it does not appear that higher prices have yet been paid. In fact, some sellers of ply combed yarn have recently complained of low priced competition. Elsewhere in the list, yarns previously on offer at concessions in price have now been withdrawn, which amounts to these sources raising their quotations one-half to a cent.

It is indicated that the upswing in yarn rates will be resumed where it left off six weeks ago and the influences behind this further price movement will be the same as those that prevailed from August onward.

It is not likely that the high prices that prevailed during the last war will be repeated during the present crisis. Taxes, more than anything else, will prohibit war profits, and with the increase in population since the last war it is unlikely that such a shortage of labor will develop.

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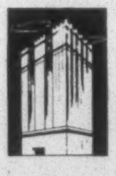

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Erecting, Overhauling and Fixing Looms

(*Continued from Page 20*)

worn. Then check the hold back pawls to see if they are properly adjusted. Then check the let back pawl and make sure that it is adjusted correctly so as to allow the proper release or let back whenever the filling breaks and the filling fork engages the filling motion hook. The let back of the take up when the filling breaks is dependent on the construction of the fabric being woven. A high count fabric will require less let back than the lower counts. While the fixer is checking through the chain of gears, of course he should check all gear studs, pinions and brackets to determine if they are worn too badly for continued use, and also see that all parts requiring it are sufficiently lubricated. All parts of the take up motion must work absolutely free of any binding whatsoever if satisfactory results are obtained.

Most uneven cloth is caused by faulty operation of the let off motion. There are various types of mechanical and frictional let off motions in use. However, the fundamental principles involved for their correct setting or adjusting are practically the same. The amount of yarn let off or delivered when using a frictional let off is determined by the tension or pull exerted by the warp yarn onto the loom beam and on through the loom beam heads to the friction bands. The amount of the yarn required is determined by the number of picks being put into the woven fabric. As the let off is actuated by the tension or pull of the warp yarn, it is absolutely necessary to keep the tension uniform at all times when the loom is in operation or faulty or uneven cloth will result.

The fixer should first check the harness settings and make sure that they are all properly adjusted. Should one or more harness be pulling lower than the others, it will cause uneven or wavy cloth, because more tension will be exerted onto the let off when these low harness are down than when the others are in down position.

Another cause for uneven tension on the warp yarn is a crooked spindle or journal in the loom beam. This can be corrected without removing the loom beam from the loom by proceeding as follows: Remove the friction chains or bands from the beam heads, then turn the beam slowly to determine the high side of the spindle. Turn the high side up and place a drift on top of the spindle and strike it with a heavy sledge hammer. The force of the blow, aided by the weight of the loom beam, will straighten the spindle.

Next check the friction bands, and before replacing the bands, check the weight lever brackets and studs and make sure that all these connected parts are working perfectly free. Various kinds of friction bands are in use: Viz. chain, rope, leather and composition materials, but they all have one thing in common, they should be kept as free as possible from oils, greases and moisture.

It is unwise policy to use too great amount of weight on the weight levers. Should difficulty be encountered in holding sufficient tension on the warp yarn, it is best to make an additional wrap of the friction chain or rope around the beam head rather than add additional weight onto the weight levers. Excessive weight on the weight levers is likely to bend or warp the beam journals or spindles. Adjust the friction let off stand to a point where the friction chain will clear the outer rim of the beam head. The friction chain should contact only the drum extension on the beam head provided for it. The outer rim of the beam head is rough, unfinished casting, and if the chain is allowed to drag against it, it will cause uneven delivery of the warp yarn and consequently uneven cloth.

If using a mechanical let off motion the following procedure should be adopted in locating and correcting the cause of uneven cloth caused by the let off motion. Some let off driving rod arms are attached to the swords and some are attached to the parallel. If attached to the parallel, check the parallel and the swords and make sure that they are securely tight on the rocker shaft. Turn the lay to front center position and determine if the pallet lever is drawn back to the proper position by the driving rod. Next check the pallet and the let off rachet wheel and if excessively worn replace with a new one. Then check the beam lever and the link lever and make sure that they are set properly and securely tight on the beam lever shaft. Make sure that the controlling lever stud is tight and not too badly worn for use. See that the whip roll vibrator rod does not bind against the controlling lever stand. Should the rod be binding, remove the whip roll lever plug and bend the vibrator rod to make it clear the controlling lever stand. Make sure that the leather or cork on the let off friction clamp is in good condition and adjusted to the proper tension to hold securely. Be sure that the let off pinion gear is in good condition and properly meshed with the gear on the beam head. Make sure that loom beam is being held in place by the yarn beam bearing or beam lock. Check the let off pinion gear and the loom beam gear and make sure that there are no excessively worn or broken teeth in either. Make sure that all movable parts of the let off motion work free of any binding whatsoever, and that all parts are well lubricated, except the let off friction clamp which should never have any oil or grease on it.

The controlling lever link on the Draper Roper let off (and that is the let off most commonly in use) is something that should be closely watched by the loom fixer. It is held onto the link lever by a cotter pin, and the pins wear and break often and allow the controlling lever link to drop down out of its proper place. This will cause faulty uneven let off of the warp yarn, and consequently uneven cloth. This can be permanently corrected by removing the link lever and the controlling lever link, put the controlling lever link in place on the link lever, place a large washer on the end of the stud on the link lever and weld the washer to the stud. This will permanently stop that source of let off trouble and uneven cloth.

(*Continued in Next Issue*)

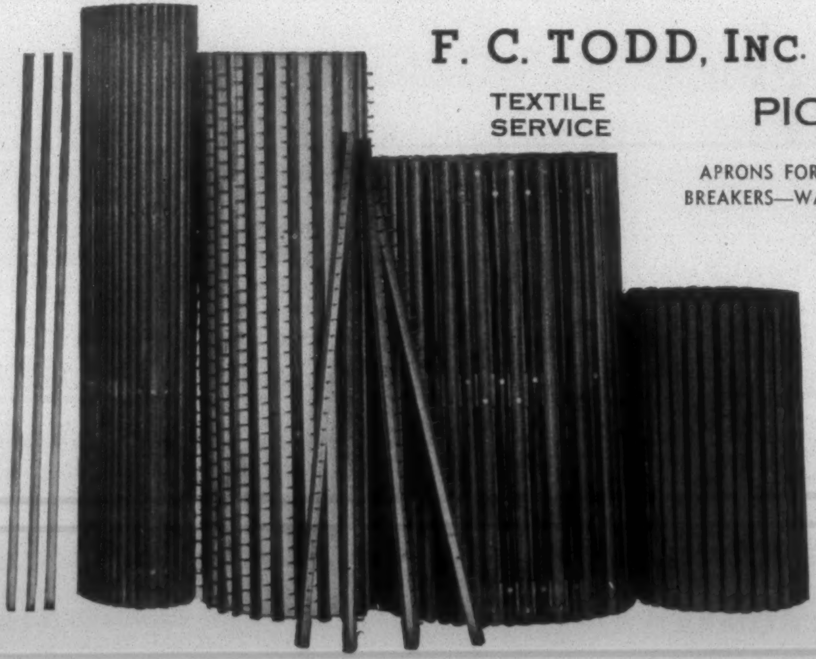
Spray Mills Winner in Tax Litigation

Washington, D. C.—The Board of Tax Appeals has decided there was no deficiency in the 1935 income tax of the Spray Cotton Mills, Spray, N. C.

The Internal Revenue Bureau had contended there was a deficiency of $4,735. The company said that in determining the net income, the Bureau erroneously had disallowed deduction claimed for refunds made by the company in 1936 to vendees, equivalent to the amount of processing taxes involved in shipments made in 1935 under certain contracts.

These contracts, the company said, provided for reimbursement to the vendees in event the processing tax was invalidated.

The Bureau had taken the position liability for the reimbursement did not arise until January 6, 1936, when the United States Supreme Court held invalid the Agricultural Adjustment Act.



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National Oil Products Co. Expands

An extensive plant expansion program will be undertaken by National Oil Products Co., of Harrison, N. J., as part of the recent SEC refinancing plan, it was announced by Charles P. Gulick, president and chairman of the board.

"Part of the funds will be used to build extensions to existing plants, and to otherwise increase production facilities," Mr. Gulick said.

According to Mr. Gulick, the new plants are necessary to take care of the rapidly expanding business of the company which is engaged, with its subsidiaries, in the hemical manufacturing business, producing and selling sulphonated oils and other chemical products and in the production of vitamins and vitamin concentrates.

An indication of the expanding business is revealed in reports of the total net sales of the company, which have increased almost without interruption during the past ten years, from $2,947,079 in 1930 to $8,296,837 for the 12 months ended September 30, 1940.

Cotton Displaces Flax for Aviation Needs

American aviation is now freed of dependence on foreign flax as a result of original research by Bibb Mfg. Co., textile manufacturers, it has just been announced.

Up to now parachute harness, safety belts, bomb slings and similar aviation supplies have been made of linen webbing produced from Belgian and Russian flax, the announcement points out, but from now on American cotton will be used.

The new cotton yarn that has made this independence possible was first developed for use in heavy-duty tire cord, V-belts and other industrial applications. It is made from especially selected, long, tough fiber cotton submitted to a special heat-resistant treatment.

Experimentation by the Army Air Corps at Wright Field and by the aeronautical department of the Navy is said to have produced a webbing made from the new cotton yarn of greater tensile strength than that made from the imported flax, and it is expected that this webbing will become standard for both the Army and the Navy.

This development, it is pointed out, is in line with the many recently released processed which are now being applied to cotton, resulting in wind-resistant, water-repellant, pre-shrunk, anti-crease, permanently starched and germ resistant cottons for use as clothing and in the home.

Collins & Aikman Nine Months Net $2,278,208

Collins & Aikman Corp. and subsidiaries (excluding Collins & Aikman of Canada, Ltd.) report for the nine months ended November 30, 1940, net profit of $2,278,208 after depreciation, Federal and State income and excess profits taxes, etc. This compares with net profit of $1,416,440 in the corresponding period of 1939.

Earnings for the nine months were equal to $3.77 per share of common stock, after preferred dividends, as against $2.23 a share in the 1939 period.

Recent Textile Patents

Textile patents predominated in recent issues to Carolinians, according to Eaton & Brown, patent attorneys, 1206 Johnston Building, Charlotte, N. C.

William H. Bahan, of Bahan Textile Machinery Co., of Greenville, S. C., was recipient of several patents relating to looms.

One of these inventions comprises a device for supporting a picker stick check strap, so that the strap is caused to pass along a tortuous course and this course can be adjusted so that the amount of resistance offered to the check strap against its movement when it is moved by the picker stick can be determined.

Another of his inventions relates to a cloth beam clutch, wherein as the cloth roll in a loom builds up and increases in diameter the amount of pressure applied to force it against the sanding roll is automatically adjusted by means of a slip clutch which is allowed to slip when the pressure against the cloth roll reaches a definite amount.

Another patent granted to Mr. Bahan relates to a grid for a loom formed from one single piece of wire and bent into one or more inverted U-shaped formations and into which the filling fork projects.

Another invention is a loom temple structure wherein the cutter is formed from a single piece of material, forming a pair of associated prongs, and this temple is also equipped with an adjustable wear plate.

Mr. Bahan, along with A. E. Burgess, of Camden, S. C., were the recipients of a patent on a back box plate for battery looms made in two pieces which permits ready and minute adjustment of the box plate.

George F. Bahan, of Charlotte, N. C., also received a patent on an electro-mechanical stop motion for looms wherein a resiliently mounted rod supports the warp and prevents loose but unbroken ends from allowing the stop motion to operate, so that the stop mottion will operate only when a broken end occurs.

Berry W. Green and Hubert L. Nalley, of Easley, S. C., were the patentees in a structure for holding the brake mechanism of a loom wherein a compression spring is employed for applying the brakes when the shipper lever is turned to stop the loom. It has been found that this is a very great improvement over a tension spring and break-downs seldom happen with this type of apparatus, wherein with the old type they were a common occurrence.

Fred C. Rankin, of Gaston County Dyeing Machine Co., of Stanley, N. C., was awarded a patent on an automatic dyeing machine having many features, one of which is that of automatic mechanism for the reversing of the flow of dyestuffs through the apparatus and other automatic means whereby a washing liquid can be passed through the apparatus after a dyeing or bleaching operattion has been completed, and whereby the wash will be automatically directed into the sewer after it has passed through the bleaching or dyeing apparatus.

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Handling, Routing and Methods of Conveying Stock Within the Plant

(*Continued from Page 14*)

means leave a big alley somewhere in your plant. Somewhere in your plant you should have a clear alley in the department that will enable you to move big and heavy things. It is a main artery of travel. If you can get it in the center, by all means do it; if you cannot, put it somewhere. If you are faced sometime with the necessity of moving machines and do not have an alley like that you are going to be embarrassed.

In our plant the elevator is in a certain position because the big alley downstairs in the spinning room is right under the big alley upstairs. Wouldn't it be just as possible to put the elevator over here, with the spinning room directly under this room? There is a reason for doing it, and that is that the weave room happens to be on the lower floor out here; the alley way leading from the two buildings is here, and it would have been possible to avoid two lines of traffic butting each other if the elevator had been over here instead of where it is. The card room is taking roving down and bringing empty bobbins back up; the spinning room is feeding over to the weave room right at the same point. So we have a bit of traffic congestion or traffic jam there. That could have been avoided by moving the elevator shaft. Whoever laid out that plant I think sacrificed a little bit of efficiency to good looks, because this is the side of the plant that presents and the elevator shaft here would jut out.

Where should the elevator be?

A Member: It depends on the position of the spinning. In our plant the card room is in an ell. I think it should be about halfway of the spinning. Our elevator hits about halfway in the spinning in a big alley.

Mr. Parks: We have several different outlines, all of which are good, and that brings us back to the thought that it all depends upon how you are situated. It all comes back to the problem of how to get the stock there in the shortest time by the most direct route with the least possible handling.

Mr. Green, how do you handle your card sliver?

Handling Sliver Cans

Sydney Green, Supt., Eno Cotton Mills, Hillsboro, N. C.: Mr. Batton or Mr. Barneycastle will tell you.

A. E. Barneycastle, Overseer Carding and Combers, Eno Cotton Mills, Hillsboro, N. C.: We take the can out from under the card and shove it out in the alley. Then we take a rope and put it around the cans and pull them where we want them.

Mr. Parks: How many can you pull with the rope at a time?

Mr. Barneycastle: About 12.

Mr. Parks: Are they 12" cans?

Mr. Barneycastle: Yes, sir.

Chairman Parks: Suppose some of the sliver spills out at the top?

Mr. Barneycastle: They are crimped in at the top.

Mr. Parks: How wide is your card alley along which you push them?

Mr. Barneycastle: I don't know; I would say from 20 to 25 inches—something like that. It is just an ordinary alley.

Mr. Parks: If you can handle 12 cans with a rope in a situation like that I would say you have something. I believe you have something that the others have not got if you can handle 12 cans in that way.

How many cans can you push successfully?

A Member: About five.

Mr. E.: As to pushing five cans, would not the condition of the floor have something to do with it? Some folks do not have a smooth enough floor; there are little obstructions or projection that catch the front can.

Mr. Parks: How does your floor run, the long way or the other way?

Same Member: Neither.

Mr. Parks: You have got me there.

Same Member: It runs at about a 90-degree angle.

Mr. Parks: How should you have it for pushing cans?

Same Member: Straight.

Mr. Parks: I had the pleasure of tearing up a card room once and putting it back just about as I wanted it. I put that floor back running crosswise of the sub-floor under the machines and running the other way in the alleys. Is that floor still satisfactory today, Mr. F.?

Mr. F.: I think it is, Mr. Parks.

Mr. Parks: Some people use a piece of iron for pushing the cans, a half-oval piece of iron that guides them on the floor.

We are now at the roving frames. We have talked about the elevator, which is part of the situation because most card rooms are on a different floor from the spinning rooms. Some plants, however, are built right straight along. In the mill over here at West Durham you can look almost a mile down the mill right straight along. Let's talk now about handling roving. Most mills have a little leeway between the card room and the spinning. If you have not, sometimes you are out of luck. How do you handle the roving?

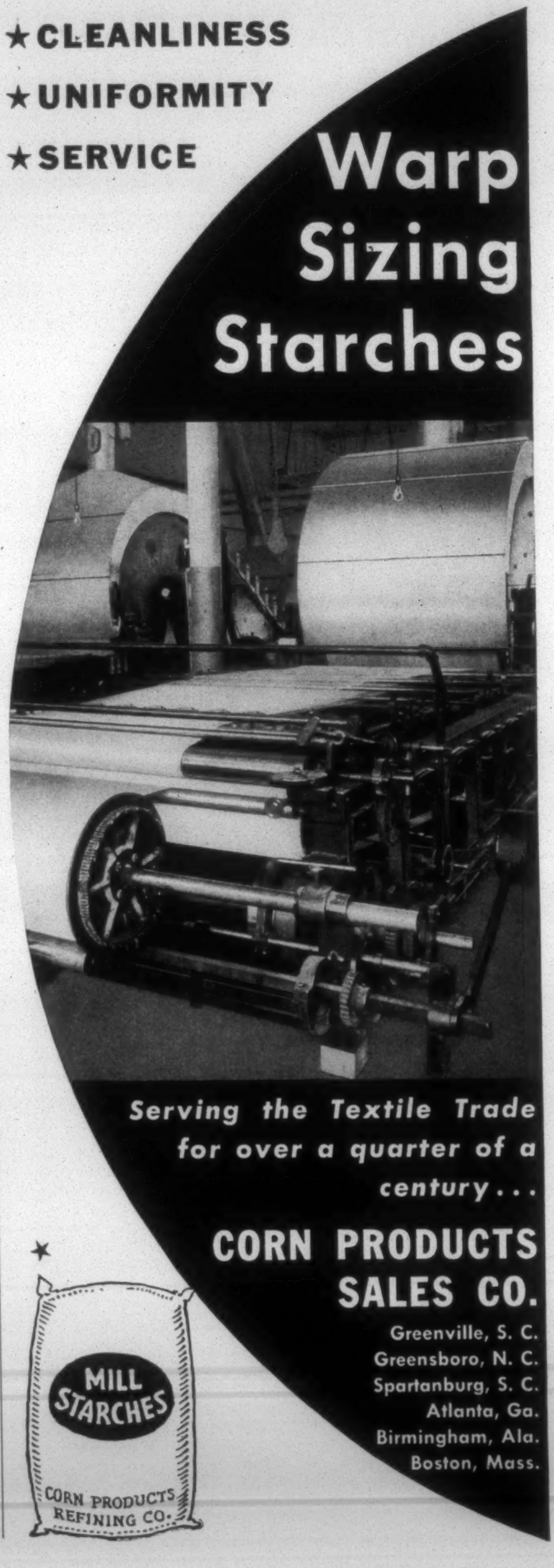
Storing Roving

Mr. Oldham: We have a few storage bins and find it necessary to store a little roving on the floor. It is covered up. With regularly running stock, however, we try to keep up enough production to keep the spinning room going all the time without having to lay up roving. You will find you can keep it in better condition by not having to store it up. We put it in boxes.

Mr. Parks: Mr. Byrd, do you keep your excess stock in boxes?

W. T. Byrd, Overseer Carding and Spinning, No. 1 Mill, Erwin Cotton Mills Co., West Durham: I shall ask Mr. Carrow to tell you about that.

C. L. Carrow, Jr., Asst. Overseer, Erwin Cotton Mills Co., West Durham: When we doff our frames we do not allow the frame hands to throw the roving in the boxes; we have them stack it in there to keep it from tangling.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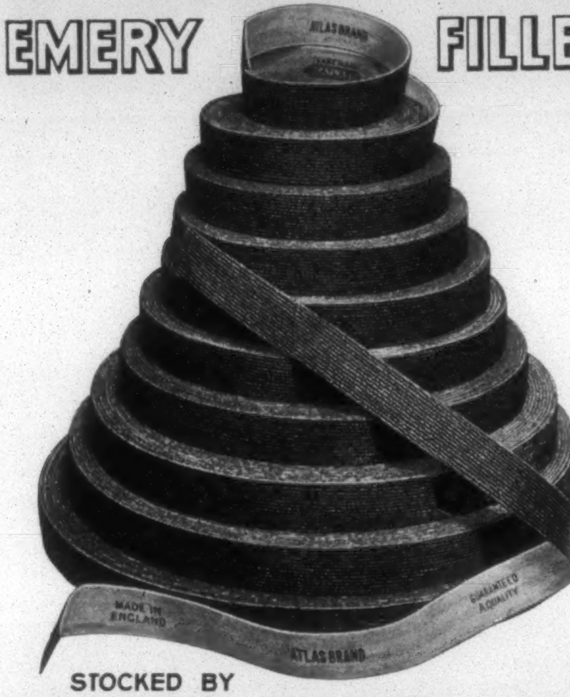

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Mr. Parks: Does that take much more time?

Mr. Carrow: No, it does not take any more. It takes much less time to take it out if it is stacked in. Then we mark the roving, of course, so we can follow the bad work back to the frame. We do not use the same boxes for roving and bobbins. We find that with the bobbins we get a whole lot of dirt and stuff, and the roving will be much cleaner if we keep it in different boxes from the bobbins.

Mr. Parks: There will be fewer splinters, too.

Mr. Carrow: Yes, sir.

Mr. Parks: So you do put it in boxes?

Mr. Carrow: Yes, we keep it in boxes. If we have any extra roving that we do not have room to lay up on the spinning frames, we have bins that we can put it in and keep it a pretty good time, because it does not dry out so badly and does not get dirty. We rotate the frames every week; that is, work them down and leave them empty.

Mr. Parks: How many shifts do you use in the card room?

Mr. Carrow: Three.

Mr. Parks: How many in the spinning room?

Mr. Carrow: Two.

Mr. Parks: What do you do with your third shift on the speeders?

Mr. Carrow: We run only two shifts on them.

Mr. Parks: Mr. Aiken, what do you do when you are making roving on the shirt shift and the spinning is not using it?

B. F. Aiken, Overseer of Carding, No. 5 Mill, Erwin Cotton Mills Co., Erwin, N. C.: We have to lay it on the floor if we do not have boxes sufficient to box it up. At times we have a good deal of it.

Mr. Parks: Do you take it right back up the next morning?

Mr. Aiken: Yes, sir.

Mr. Parks: You take it up the next morning and use it on the spinning frames?

Mr. Aiken: That is right.

Mr. Parks: That makes the spinning room unhappy and makes you unhappy and everybody else?

Mr. Aiken: Yes. It makes the elevator man unhappy, too.

Mr. Parks: And then you come down to the superintendent and tell him you have not got enough boxes?

Mr. Aiken: Yes, sir.

Mr. Parks: The idea is this; you pay money to put the roving down on the floor and pay money to take it up the next morning, whereas you could put just a little money in boxes, store the roving in the boxes, and push them up next to the wall. Those boxes, of course, can be used over and over. I know, of course, that sometimes we have to put stock on the floor; sometimes we have dead stock; but just merely to put stock down on the floor and take it up again because we do not have enough boxes to put it in is the height of foolishness.

Mr. G.: I should like to know what kind of boxes are used.

Mr. Parks: What kind do you use, wood or tin or fibre?

Mr. G.: All three.

Mr. Harden: We have had some fibre boxes that had wooden bottoms. After you use those a while for bobbins splinters come up in the bottom, and if some fellow comes and puts roving in that box the splinters cause trouble. We found that if we got Masonite board and cut out a piece that fits in the bottom of the box and put it in there with the slick side up it makes the box just as good as it ever was. We have put it in new boxes, also, to keep from tearing the box up.

Going back to roving, do you in storing roving have a system for using the roving in rotation? If you have no such system, perhaps the bobbins in the back will stay there for months before being used.

Mr. Parks: What system do you use?

Mr. Harden: We have a long bin, with sections in it. Each section has a door. We have signs on little boards, with hooks on them, that they move along on the bins. When the fellow from the card room stores roving in there he moves that little board along. The signs say: "Take roving here" and "Put roving here." The signs are moved along continuously, so we do not use the roving from one place all the time.

As to bobbins, we keep surplus bobbins in a bin that has a rolling top. You have to roll the top up to get the bobbins out; the bobbins are not lying there exposed to the dust all the time and getting dirty.

Question: Does anyone have a rack in the bottom—instead of a solid bottom have just rods across, so the dirt will not accumulate?

Mr. Parks: Does anybody have a system like that? That is most interesting.

Mr. Oldham: I made some of those one time. It is mighty nice, because when you take the roving out it is empty; there is no dirt under there. One drawback is that if you use air to clean and get the air hose down on the floor it blows stuff up in there.

Mr. H.: I like the idea of stacking the roving in the boxes, but we do not do it because we figure it would take longer. What we did was to tell our boys that if they did not throw it in carefully they would have to stack it, and that scared htem so that they are careful. I should like to ask Mr. Carrow if he means that it takes no longer to stack it than to throw it in.

Mr. Parks: I think he means that the operation as a whole takes no longer, putting it in and taking it out. Will you explain, Mr. Carrow?

Mr. Carrow: I mean that the whole operation of stacking it in the boxes and taking it out takes no more tmie. They save time in taking it out.

Mr. Harden: I should like to say that I believe it takes no moretime to stack it in than to throw it in, after a person gets used to the operation.

Mr. Oldham: I agree with you, Mr. Harden.

Mr. I.: I happen to have run a frame for 22 years, and I know a little something about running the speeder. If you take a man who has never doffed a frame and have

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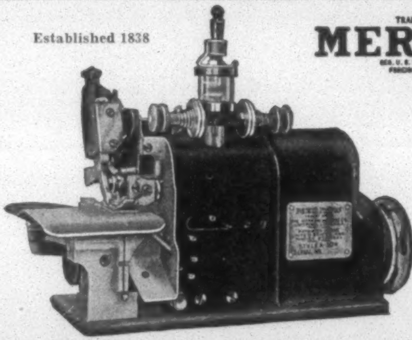

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him pack the roving in the box it will take him somewhat longer, but after a man once gets the hang of it, it takes no longer than to throw it in. I used to be a good hand at throwing it in, but I really like stacking it in the boxes. After a man once learns the art of it, it takes less time.

Chairman Parks: Let's now take up the spinning. There are two things to be considered in the spinning room, the empty bobbins and the full ones. In most mills when the doffer gets his box full the first thing he does is to tear out just as hard as he can go, running behind his box, to get to where he can get rid of what he has. I expect most of you have had some accidents in your mills because the frames are higher than a man and the doff man cannot be seen coming. That is a traffic problem—people going in two directions who cannot be seen because of high machines. We have to consider that. I think the safest thing to do is to have a wide alley in which traffic can move in two directions in separate lines.

What do you do with the quills or the bobbins? What is the best method of disposing of them? Do you just dump them out on the floor or do you put them in bins?

Mr. J.: You mean after they are doffed off? We just leave them at stations, and we have an electric truck that picks them up.

Mr. Parks: But your doffer does not get them any place, does he?

Mr. Harden: I might explain to you a little further. We have one central point at which we want the filling and the warp in the slasher room. These electric trucks, with trailers on them, haul all the material. The doffer puts the full bobbins in a basket at the end of the spinning frame, and then they are taken to the slashing room. Everything is handled in there, and then the bobbins are taken back on the same electric truck. Of course, we have to carry empty bobins back and empty loom beams and also have to carry warp and filling. We used to carry it outdoors but now we haul it through covered passageways. This saves tremendously in stock.

Mr. Parks: So your doffer does not go any place?

Mr. Harden: No.

Question: How do you get back the empty quills and bobbins?

Mr. K.: As a rule the bobbins are caught right at the winder in some of the canvas baskets. The excess baskets are nested and taken back. We have different-colored bobbins for different numbers. We have a red-tipped bobbin, for instance, for 11½s.

Chairman Parks: I think you are going to have lots of visitors over there, if you will let us come.

Mr. K.: We shall be glad to have you.

Mr. Parks: That sounds like the most modern conveying system I have heard of.

Question: Do you paint those bobbin tips yourselves?

Mr. K.: No. We bought them tipped.

Mr. Parks: There is one thing I think we should cover before leaving this subject. That is, sometimes we get out of balance temporarily. You can pour up the bobbins out of the canvas baskets until about shift-changing time down in the winding room or the spooler room. Then maybe you want to hold back until you start another shift, so you have a surplus. How would you handle that?

Mr. L.: Occasionally everything is filled up and we have to put some yarn on the floor.

Mr. Parks: Then you have to pour it up in some of the bins?

Mr. L.: Yes.

Mr. Parks: And then you have to dish it back up?

Mr. L.: Yes. We get a lot of tangled bobbins that way. We want to get some more boxes.

Mr. Parks: So you are going to get some more containers?

Mr. L.: Yes, sir.

Mr. M.: In other words, the ideal way is to keep everything in boxes up on wheels?

Mr. Parks: Yes, sir.

Mr. K.: This electric train will carry as many as eight trailers at a time; it will haul empty bobbins, baskets, and warp.

Mr. Parks: You have to have a fairly wide alley, do you not, to keep those trailers from snaking up against something?

Mr. K.: They run pretty well, Mr. Parks.

(Continued in next issue)

Textile Machinery Output in 1939 Found 13.2% Below 1937

Washington, D. C.—Manufacturers of textile machinery reported moderate decreases in employment, wages and value of products for 1939 as compared with 1937, according to preliminary figures compiled from returns of the Census of Manufactures for 1939 and released by William Lane Austin, director of the Bureau of the Census, Department of Commerce.

This industry, as now constituted for census purposes, embraces establishments primarily engaged in the manufacture of machinery for the textile industries. It does not include those establishments engaged exclusively in the manufacture of roll coverings or the re-covering of rolls.

The wage earners primarily engaged in manufacturing in this industry in 1939 numbered 21,904, a decrease of 13.6 per cent compared with 25,340 reported for 1937, and their wages, $27,614,519, were less than the 1937 figure, $33,139,469, by 16.7 per cent. These decreases may be partly accounted for by the fact that the 1939 Census of Manufactures questionnaire, for the first time, called for personnel employed in distribution, construction, etc., separately from the manufacturing employees of the plants. Employees of the plants reported as engaged in distribution and construction activities in 1939 are not included in this preliminary report but will be included in the final report.

The value of the products of the industry for 1939 amounted to $93,276,326, a decrease of 13.2 per cent compared with $107,428,810 reported for 1937.

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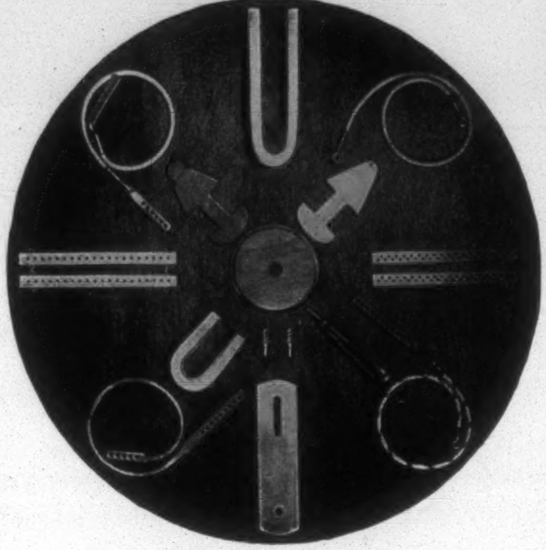

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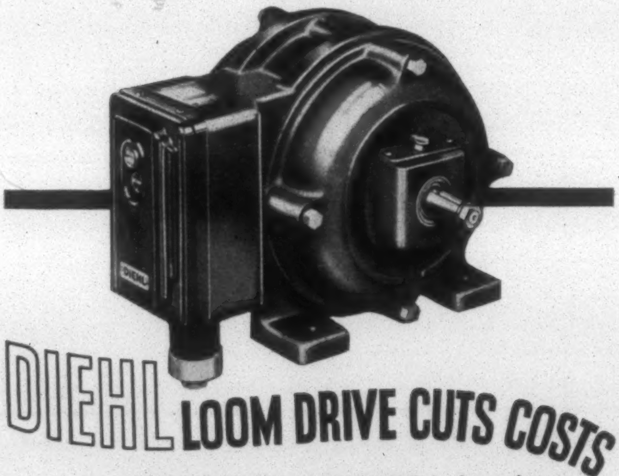

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Utilization of Cotton and Other Materials in Cordage and Twine

(*Continued from Page 16*)

average of 1.18 pounds of cotton was used for each pound of cotton cordage and twine manufactured in 1937. Of the total cotton reported used, slightly more than one-fourth was cotton waste and slightly less than three-fourths was cotton lint. More than 40 per cent of the waste used was card strips and more than 20 per cent was comber waste. Most of the cotton lint user was of seven-eighths of an inch or fifteen-sixteenths of an inch staple and more than half was strict low middling in grade. The percentage of waste and grade and staple of cotton used varied with the type of product.

Undoubtedly business conditions have been the most important factor influencing the consumption of cotton in cordage and twine during the last few years, and this factor is likely to continue to be most important in the immediate future. Other factors of importance are changing price relationships, changing uses, and technological developments. Changes in price relationships, unless extreme, are likely to be of only limited importance. Changing uses and technological developments may be of great importance over a long period of time, but their effect is likely to be felt only gradually.

Record Breaking Activity Marks 1940 for Textile Industry

(*Continued from Page 18*)

rayon producers ever exceed a two weeks' supply.

For silk, the year-end supply in the United States is believed to be adequate, some market reports even indicating that stocks are somewhat higher than normal. The total visible stocks of silk in Japan at the end of 1940 were nearly twice as large as they were at the end of 1939. Further evidence that the supply of silk in Japan is adequate may be gleaned from a recent report that the Japanese Government plans to reduce cocoon production next season to a total about 14 per cent below this season's figure.

Japan Takings Of U. S. Cotton Put At 350,000 Bales in 1940-41

Washington, D. C.—Japanese takings of American cotton to date and the general state of the Japanese textile trade suggest that imports of American cotton may not exceed 350,000 bales in 1940-1941 against 898,000 bales imported in 1938-1939, the Office of Foreign Agricultural Relations says. A narrowing of the price spread between American and other growths would, however, encourage imports from the United States.

Japanese demand for Indian cotton continues good, but the freight situation is becoming increasingly difficult. Brazilian cotton is being bought to the extent that limited cargo space will allow. Purchases of Peruvian, while small in relation to total requirements, are much larger than usual, because of favorable prices, availability of shipping space, and the need to supplement limited supplies of Egyptian.

Solving the Problem of Vapor Removal By Air

(*Continued from Page 10*)

being released in the room, and, where will the supply of air we are using to pick up this moisture come from. Finding the quantity of air required to pick up the moisture evaporated from the yarn would be determined as follows:

Find, or decide on the temperature and relative humidity of the air which will enter the exhaust system (this is the room air), and from a phychrometric chart determine the moisture content per cu. ft. of this air; find or decide the temperature and relative humidity of the air being expelled through the exhaust system, and from the phychrometric chart determine the moisture content per cu. ft. of this air. The difference between the moisture content per cu. ft. of the air entering the system and that of the air in the exhaust system is the moisture "pick-up" per cu. ft. of air. With this information you can now determine the amount of air necessary to pick up the moisture being liberated as follows:

The quantity of moisture being evaporated per minute divided by the "pick-up" per cu. ft. gives the volume in cu. ft. per minute required to do the job. (This is the volume of air necessary to exhaust.) Then select a fan for the exhaust system which will handle this volume through the system being used, and keep in mind that this selection must take into consideration the resistance which the hoods and ducts offer when the required air volumes are passing through them. A good design will keep this resistance to a minimum, thereby insuring economical operations as well as low maintenance, etc.

We have now selected the amount of air to be exhausted, and we have explained that this air must be replaced. Generally speaking, this replacing air will be obtained from the outside in both winter and summer, and during the winter operating period an additional problem arises due to the necessity of heating this incoming air to room temperature. There are several systems found in use and we will mention the types usually found. First, this method, and the one generally found, consist of pipe coils which were installed as a heating system for the room without anticipation of the additional heating requirements brought about by the exhaust systems. Such heating arrangements are usually inadequate because they permit drafts of cold air which tend to cause excessive condensation in the exhaust system, and result in damaged warps and less drying capacity. Consideration should also be given to the comfort, health, and efficiency of the employees, which are adversely affected by low temperatures and drafts incumbent with such systems; second, in this type system we find conventional pipe coils installed for room heating as previously explained, and in addition, the copper finned type coils installed in the walls or windows to heat the incoming air to room temperature. This incoming air is indirectly brought in by the suction set up through the operation of the slasher exhaust fans, and since this is true, coils selected for such installations should be generously sized or otherwise their purpose would be defeated. Due to the fact that it is necessary to cause a partial vacuum in the room in order to cause outside air to flow through the coils we believe this system is improved by the following method.

Third, this system is like No. 2 above with the addition of fans to bring the air through the coils in the required quantities. This may be done by the use of unit heaters or a blower used in conjunction with coils and a duct system. In either of the last two methods, automatic temperature controls are needed.

The third method is preferable inasmuch as it insures a positive supply of properly tempered air which aids the process of drying the yarn and eliminates drawing air from other parts of the mill where efforts are being made to maintain definite atmospheric conditions. An example of this undesirability would occur when air would be drawn from the weave room into the slasher room as the already high relative humidity air from the weave room would have very little additional capacity for moisture

(*Continued on Page 66*)

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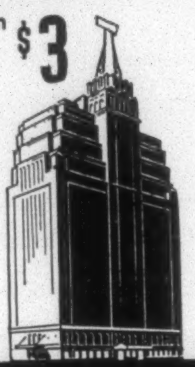

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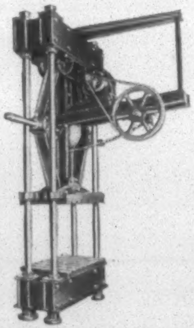

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Textile Mills Must Face National Defense Needs

(*Continued from Page 9*)

going to the government, and how much more could be spared, if needed; how far ahead the total production of each mill is sold, etc. This information I think we should give to the committee. I would like for this committee, after conferring with spinners, weavers and procurement officials, to recommend what they consider fair top prices for the years going into government work only, and to pillory as a profiteer to his neighbors and to the defense authorities in Washington any case of pushing through that ceiling. If an additional paid assistant is needed to help this committee, I recommend that one be employed, at the discretion of the committee.

Summary

Gentlemen, I have poured out to you all that is in me. I have told you all I know about this picture exactly as I see it. I have spoken with all possible candor, but without malice toward any honest, decent citizen. I have tried to preserve a reasonable balance between the natural desires and aspirations of individuals and their public duty. I have tried to appraise the obstacles that must be overcome by a democracy when pitted against totalitarian forms of government. I have proposed a program designed to overcome those obstacles. It was my duty to do this. I do not claim this to be the best answer to the problem. This is your Association. It is for you to choose your own course. If by any form of voluntary co-operation we can do our part toward national defense much will have been achieved. If we cannot, I see only one alternative, and that is to tell Uncle Sam to get out the Big Stick and take what he needs."

Solve Cotton Problem By Increasing Uses, Says Murchison

New Orleans, La.—Solution of our cotton problem depends upon a direct attack on surplus stocks through stimulating increased consumption rather than on "a wholesale attack upon the entire groundwork of our agricultural policy," Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, told the Farm Economics Association at the Roosevelt Hotel here.

Favoring continuation of the government's present control program, he attacked current proposals for high loans, processing taxes and a marketing certificate plan as "creating new evils far worse than those they are designed to remedy." Continuing, he said:

"The right place for an attack is upon the cotton surplus itself. So long as it is encased in steel bands and jute wrappings it is of no value to anyone. The only constructive fact about this surplus is that it needs to be used. It is crying aloud to be manufactured into finished goods for the 130,000,000 American people who need it and want it and have the means to pay for it. This can be accomplished if we will stop thinking of cotton as a farm product alone, and regard it as an item of consumption.

"As cotton is nurtured in the fields, so must it be nurtured in the factories and in the channels of merchandising. As cotton is protected for the sake of farm income, so must it be protected for the sake of consumer utilization. Cotton cannot continue to be vital to one group unless it is made vital to all groups.

"Five years ago the industry was resigned to an annual domestic consumption of 6,500,000 bales or less. In 1939 the industry consumed 7,750,000 bales. In 1940 consumption will touch 8,000,000 bales. In the crop year ending in August, 1941, there is a likelihood that we shall exceed 8,750,000 bales."

Adoption of a parity loan policy would necessitate the payment of huge subsidies to retain any export market for raw cotton, the speaker said. He estimated the cost at $100,000,000 per year on an export of only 2,500,000 bales. Adoption of a marketing certificate plan would increase the cost of cotton as a raw material from 60 to 75 per cent; and this passed on to the consumers, would be the equivalent of a sales tax of 12 per cent which, if imposed directly on the public, "would be politically ruinous." It would also "surrender the greater part of the American cotton market to synthetic fibers, paper, jute, tin, wood and plastics, to mention only a few of the great horde of cotton substitutes." In conclusion he said:

"The cotton-textile industry believes that its greatest contribution to American agriculture and to the national well being can be made by widening and deepening the channels of cotton goods distribution. It wishes to preserve and srengthen the importance of cotton in consumption. It does not believe that this position is irreconcilable with a soundly administered cotton control program.

"Nothing in economics could be more nearly true than that it would be economic folly to arrest the present upward trend of cotton consumption by artificial stimulation of consumer resistance to unfortunate and inadvisable price changes."

Hercules Powder Co. Plans $10,000,000 Bag Loading Plant

Roanoke, Va.—A $10,000,000 bag loading plant to be run in connection with the Hercules Powder Co. operations at Radford, Va., will be located near Pulaski, Mayor E. W. Calfee, of Pulaski, announces. He said word to this effect came from the War Department.

The plant will lie adjacent to the Norfolk & Western Railroad, about four miles from Pulaski and 16 from the Hercules plant. Mayor Calfee said he understood the plant would represent an investment of about $10,000,000 and would employ at full operations, 2,500 workers, 1,500 of them women. Construction is to start at the earliest possible date.

New Broadside By Steel Heddle

An attractive and interesting Broadside has just been received from the Steel Heddle Mfg. Co., Philadelphia, Pa., entitled "Steel Heddle Offers You More Than a Superior Quality Product." It treats with the specialized co-operation and advisory service rendered to those in the textile industry wishing same. It also treats of the development and experimental departments of the company, together with a few words regarding heddles.

A copy of this Broadside, known as A-183, will be gladly sent to any one writing to Steel Heddle Mfg. Co.

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David Clark Addresses Engineers Club

(Asheville Citizen, Asheville, N. C., Dec. 17, 1940)

A dark picture of the United States' future after peace comes to Europe and our defense program is halted was painted by David Clark, of Charlotte, editor of the TEXTILE BULLETIN, at a monthly meeting of the Western North Carolina Engineers Club at the George Vanderbilt Hotel last night.

Mr. Clark's remarks concerning the future of this country were made mostly during an open forum period following his talk on "Development of the Textile Industry of the South."

W. J. Parks, Jr., president, presided, and Julian Stepp introduced the speaker.

After the war the people of Europe will be able to pay us only in goods, Mr. Clark said, because they are going to be flat broke.

He predicted that the present generation will see the day when it will look back to the years of 1929-30 as good times.

Europeans will be working 15 hours a day to get hold of a little money, Mr. Clark said, and their goods are going to be so much cheaper than ours that we will not be able to compete.

The United States need not expect to trade with South America, he continued, because those nations will not buy our goods at prices higher than they will have to pay in Europe.

It was his opinion that "we are going to have to live within ourselves," and that we will not be able to maintain our present standard of living.

Mr. Clark traced development of the textile industry from its origin in Bavaria several hundred years ago to the present and said that the number of cotton spindles in the South began to recede in 1930 for the first time since 1813.

The "so-called Scotch-Irish" who started development of the textile industry in this section are really not Scotch or Irish but stem from the Bavarians who took over the textile industry in England many years ago, he said.

Mr. Clark traced the movement of these Bavarians from their native land to England, to Scotland, to Ireland and thence to the section around Philadelphia from where they moved South.

Development of the textile industry in the South was held up for years because of the feeling that an agricultural economy was best for this section, he said, and also by the bankruptcy of the South following the Civil War.

There were only 324,000 spindles in the South at the time of the Civil War, less than there are in Charlotte today, he said. By 1910 this number had increased to 10,500,000 and the peak of 18,585,000 was reached in 1930. Today there are 18,080,000, of which 17,640,000 are operating.

The textile industry in New England progressed until there were 21,000,000 spindles in that section in 1923, he said, but too much legislation, labor unions and inefficient machinery were among the factors which have today reduced this number to 5,761,000, of which 4,848,000 are operating.

New England will never exceed its present number of spindles, he said, and "I don't know where we are going today in the South."

The United States today has a centralized government, he said, and "no great republic ever lasted any great length of time under a centralized government. History shows that whenever a republic goes to centralization, it goes out."

"A packed Supreme Court is willing to rule any way the Administration wants," he said, and the "powers have been stolen from the States through interpretation of the Constitution."

One bright spot in the textile field, he said, was the fact that many full fashioned hosiery mills have left Pennsylvania "because conditions were so lawless" and have established mills in the South. He expects this movement to continue for some time.

Regarding nylon, the new synthetic, Mr. Clark said that within three years more than 85 per cent of all women's full-fashioned hose will be made from it and silk, as far as hosiery is concerned, will disappear.

With full production of nylon, hose from this material may possibly be retailed at from 40 to 50 cents per pair, he said, because with increasing production there will be a corresponding reduction in price.

Asheville is one of the best located towns for manufacturing of textiles, he said, and another plant such as Enka would so improve conditions that every business man would feel the effect of it.

S. C. Textile Workers Get 175% Raise in Pay in 30 Years

Average annual earnings of South Carolina textile workers have increased approximately 175 per cent in the last 30 years, and 1937 textile payrolls were 45.8 per cent above those for 1929, according to a report of the Work Projects Administration, released through the office of Lawrence M. Pinckney, State Administrator.

The report, "Unemployment in South Carolina," points out that the textile industry employs 76 per cent of the total wage earners in manufacturing establishments in South Carolina, and that these wage earners receive 79 per cent of the total manufacturing payroll of the State. Both percentages were computed from Census of Manufactures figures for 1937, the latest year for which such figures are available.

"The per cent of wages to the value added by manufacture in these industries in South Carolina," the report states, "has increased from approximately 48 per cent in 1929 to approximately 57 per cent in 1937, or approximately 9 per cent, and the same comparison for all other industries in South Carolina shows a reduction from approximately 42 per cent in 1929 to approximately 40 per cent in 1937, or approximately 2 per cent decrease."

The WPA tabulation shows further that the proportion of wages in the textile industry in South Carolina to value added by manufacture in 1937 was more than 16 per cent higher than for all other industries in the State for the same period.

The report shows that during the past 19 years the cotton mills have consumed approximately 6,000,000 more bales of cotton than have been produced in the State, and that based on value of cotton lint and cotton seed, farmers of the State have received more than two billion dollars during the last 24 years, or an average of more than $95,000,000 per year.

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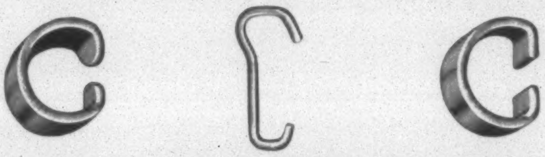

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Solving the Problem of Vapor Removal By Air

(*Continued from Page 59*)

"pick-up" in the slasher room. Then drawing air from the weave room would add an additional expense in maintaining the desired relative humidity in the weave room.

Although this article has used the slasher room as a typical example of a vapor removal problem, this process and method of design is applicable to any condition wherein vapors are to be removed by air.

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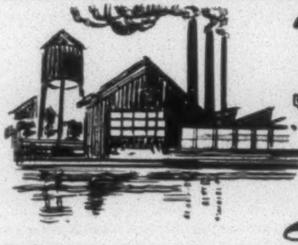

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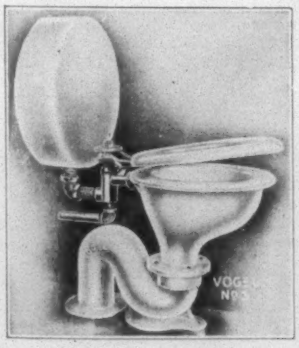

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